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THE UNIVERSITY OF ALBERTA

LANGUAGE ARTS SKILLS AND PROCESSES OF ADOLESCENT ESL STUDENTS

BY

© MARGARET AILEEN CURRIE

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF EDUCATION

DEPARTMENT OF ELEMENTARY EDUCATION

EDMONTON, ALBERTA

(FALL, 1986)

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Date: Sept. 15, 1986

Dedicated to Keith Currie and

Loretta and Harvey Wallace

ABSTRACT

The purpose of this study was to investigate the language arts skills and processes of 24 ESL students who were going from ESL programs to regular grade 10 programs in a large urban area of Alberta. Pearson correlations relating scores on five language arts tests with selected factors reflecting formal and informal education provided a focus for the description of the students and the skills analysis. Unaided recalls of passages on an informal reading inventory, oral and written picture stories/descriptions, and notes taken while listening and while reading provided the data for the process analysis.

Findings indicated that, although these students were performing below grade level in language arts skills, their reading scores were within the range of scores found in grade 10 classes. Mother tongue maintenance appeared to aid L_2 reading skills. Two variables which were significant ($p \leq .05$) and positively correlated with all language arts test scores were the teachers' predictions of future school success and the similarity of homeland school system to Alberta's school system. Most other variables were significant and positively related to the scores on the Peabody Picture Vocabulary Test.

From the comprehension profiles, it was inferred that processing at independent reading level was similar to that used by good L_1 readers; however, at instructional and frustration levels processing broke down. This implies that material should be selected at students' independent levels in ESL classrooms, and that, on reading tests, the independent level should be used to establish the grade level at which students can read effectively. As processing within tasks using different modes of input and output produced similar profiles, testing

all areas of language arts should not be essential. However, care must be taken in choosing the testing task as different tasks elicited different types of processing.

There was evidence of 'incorrect' interpretation of input based on cultural interpretation, and synthesis across sentences was a problem on all tasks. Hence, development of knowledge of Canadian culture and work on synthesis are suggested for ESL classrooms.

Further research using silent reading rather than oral reading, using different ESL populations, and including a longitudinal study were suggested. Finally, the univariate approach to L_2 research appears to be inadequate. Instead, an interdisciplinary approach is suggested. With this in mind, Fagan's L_1 Semantic Potential Interactive Processes Model was suggested as appropriate for L_2 research.

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CHAPTER I

THE PROBLEM

Introduction

It is generally accepted that English as a Second Language (ESL) graduates have a difficult time coping in the regular Canadian classroom. Piper (1985), an ESL Professor at the University of Calgary, summarizes the situation of ESL students in the regular Alberta program as "submersion". The Toronto Board of Education's Every Student Surveys of 1969 and 1975 found that ESL students who immigrated to Canada performed worse academically and were in lower academic streams than those who were born in Canada (Cummins, 1980, p. 23).

In 1978, Cummins analyzed the teacher referral forms and psychological assessments of over 400 New Canadian students who had been assessed between 1975 and 1978. He found that many teachers referred ESL students for psychological assessment after they had been in Canada one or two years. This was because their functional communicative skills were good, but their academic achievement was poor. When Cummins analyzed data from the Every Student Survey, he found that it takes New Canadian children, who arrive at age six or later, between five and seven years, on the average, to approach grade norms in English cognitive/academic skills. To formalize his findings, Cummins made a distinction between Basic Interpersonal Communicative Skill (BICS), which is the ability to use language in functional, social settings, and Cognitive Academic Language Proficiency (CALP), which requires ESL students to learn English labels to name academic concepts

learned in their native country and to develop the advanced concepts required to succeed in the regular program.

It is important to note that at the time of Cummins' study there were no formal ESL programs in Toronto. In contrast, there were teacher-designed ESL programs in the urban school system in Alberta which was involved in the present study. This ESL program began in the sixties with approximately eight inner city school programs which were, for the most part, funded by a provincial program for 'socio-economically deprived' children. By the eighties, the ESL population had spread across the city. This was in part because after New Canadians established themselves, they began to buy suburban homes and to reunite their families. It was also partly a result of the influx of refugees with each world crisis. At the time of this study, an ESL supervisor and consultant worked with ESL teachers in approximately 100 schools to assist about two percent of the total district's population. The types of programs available are discussed further in Chapter IV.

Bain carried out a needs assessment in the fall of 1980 to determine goals and program needs for ESL students in the school system involved in the present study. He noted general agreement among respondents as to importance of goals ranging from high importance for listening and speaking skills in English to above average importance for reading and writing English. There was 100 percent agreement that teaching reading and writing is the school's responsibility and general agreement that they are not doing very well in achieving the goal. Bain's study was based upon answers to questionnaires sent to many respondents, but a thorough examination of actual performance of the students was not undertaken.

The purpose of the present study is to describe 24 ESL students who are moving from three of the district ESL programs to regular senior high programs. The skills or product analysis of language arts achievement extends the work of Bain and Cummins by analyzing language arts skills of another ESL population and by relating these skills to various factors reflecting formal and informal education. In addition, the process analysis focuses on the cognitive processes used by these students as they interact with graphic and oral language input. Several reading studies in recent years have documented cognitive processes used by native Canadian speakers of English in Alberta (Zinn, 1979; Coles, 1983; McKen, 1984; Kavanagh, 1981; Clarke, 1981; Brake, 1981; Machura, 1981; Deane, 1984; Beebe, 1981; Brailsford, 1981; Cronin, 1980; and Ramey, 1985). However, this researcher is not aware of any studies which have examined the cognitive processes used by ESL students in Alberta as they interact with pictures, and read and hear passages in their new language, English.

Major Questions to be Explored

To focus the discussions of language arts skills and processes of ESL students, the following questions were formulated.

Product Analysis

1. Are there significant correlations between selected factors reflecting formal and informal education, and scores on the language arts test?
2. Are the English language arts skills of these new Canadian adolescents approaching grade norms?

Process Analysis

1. Are similar processes used when ESL students read passages at independent, instructional, and frustration levels?
2. Are similar processes used by ESL students when listening to and reading about a content area?
3. Are similar processes used by ESL students when discussing a picture informally and when writing about it in a formal setting?
4. Are similar processes used by ESL students when recalling graded reading materials, taking notes in a content area, and describing a picture?

Definition of Terms

ESL students: Those English as a Second Language students who are learning Canadian English. It is not their native language. Advanced ESL students study in special classes designed by classroom teachers who diagnose their needs. Transition students receive tutorial assistance from ESL teachers as they begin to study regular core subjects.

Regular Program: The Alberta program defined by Alberta Education. English 13 or English 10 is included in the grade 10 program.

Reading Processes: Cognitive behaviors used by the reader to interpret and give meaning to written discourse (Fagan, 1983, p. 36). This definition is extended in this study to include picture input and oral input.

Recall Protocol: The verbatim transcript of oral language output and the written language output during unaided recall.

L_1: Mother tongue.

L_2: Any language studied after L_1. L_1 may or may not be well-developed.

Assumptions

The following assumptions are made.

1. Fagan's Comprehension Categories for Protocol Analysis (1984) and the adaptation of them for picture story analysis provide access to the cognitive processes used during the language arts tasks assigned.
2. As these students were graduating from ESL, it is appropriate for them to complete the language arts tests commonly administered to native speakers of Canadian English.
3. Personal facts (age, number of languages known, number of years of education, etc.) were elicited from the students, and it is assumed that these facts are accurate.

Limitations and Delimitations

When considering the results of this study, the following delimitations and limitations should be observed.

1. This experimental population is a sample of students from ESL programs in one urban school system to the regular programs. Findings apply only to this group.
2. The students may not have been accustomed to the recall procedure used or the tape recording.
3. Some testing situations at one of the schools were noisy. This may have distracted students.

Significance of the Study

Knowledge of the language arts skills and process of ESL students is important for developing an accurate theory of L_2 reading and for

developing better instructional programs and tests for ESL students. The process analysis of this study applies Fagan's Semantic Potential Theory of Reading (1983) to an ESL population in order to better understand how ESL students process English language input and pictures. His theory is also used to develop a framework for considering many of the factors which appear to influence L_2 learning. In doing this, Fagan's comprehension categories for protocol analysis have been applied to a new population, and have been extended to include picture input.

Plan for Investigation

Chapter I contains an introduction to the problem, the purpose of the study, and the questions to be explored. The assumptions, limitations and delimitations, and significance of the study are also discussed. The background for this study is discussed in Chapter II. Chapter III details the design of the study, while Chapter IV contains the findings and a discussion of those findings. Finally, a summary of this study, conclusions, implications, and suggestions for further research are presented in Chapter V.

CHAPTER II

RELATED LITERATURE

This literacy study was an examination of the language skills and processes of ESL students who were graduating from ESL classes to the regular grade ten program. Subjects were given several different types of input, and then asked to respond either orally or in writing to that input. Input varied from traditional language arts tests and an informal reading inventory, to content reading, listening comprehension, and picture story/description tasks.

This section relates the L_1 and L_2 theories and research which form a basis for this study. Section one presents a model for second language acquisition. This model and Krashen's input hypothesis provide the rationale for the choice of graphic input in the present study. Section two presents the rationale for the focus on reading processes. Section three provides the theoretical basis for this study and second language research which supports this theory. Section four focuses on how the cognitive processes are accessed. Section five documents recall studies which form a link between Fagan's theory and the present study.

Working Model for Second Language Acquisition

Dulay, Burt, and Krashen's model is presented in this study as it has had more impact on recent second language (L_2) research than any other model (Nagle, 1986). According to Dulay, Burt, and Krashen (1982), language acquisition is an "interaction between the child's innate mental structure and the language environment" (p. 8). The model (p. 6) is presented in Figure 1. The model is a combination of several hypotheses

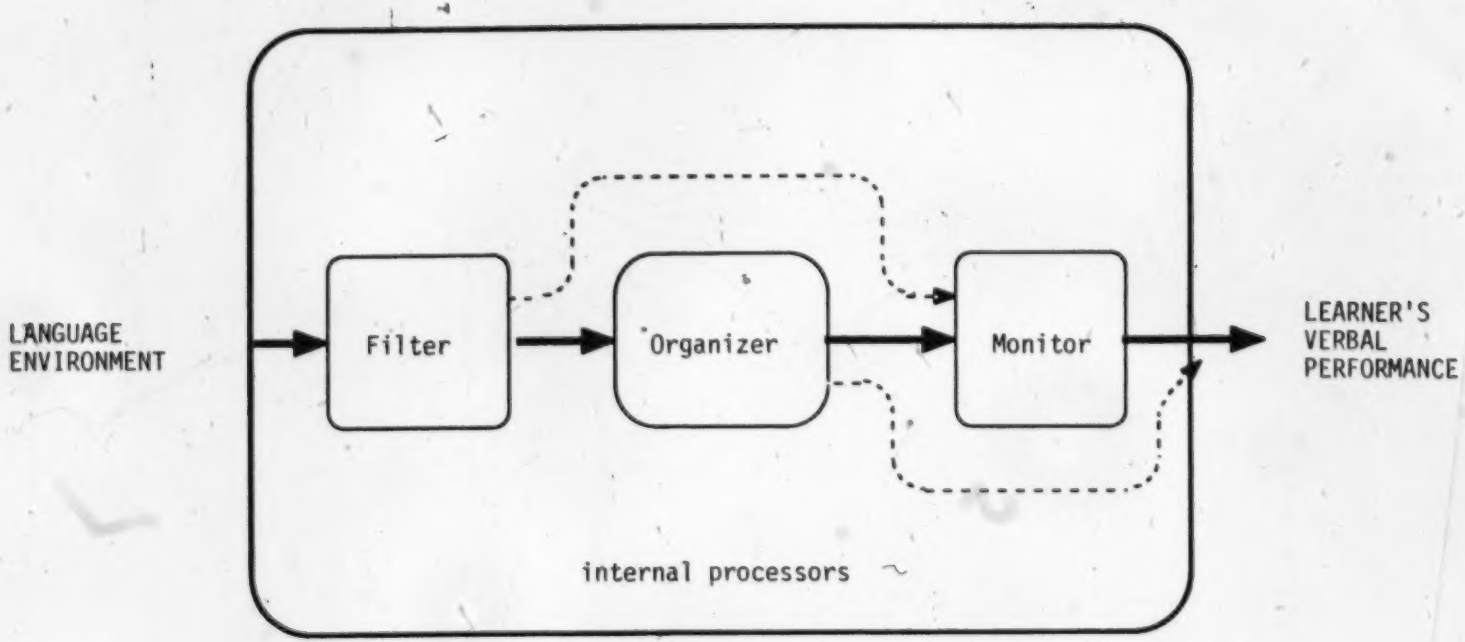

Figure 1. Dulay, Burt, and Krashen's (1982) Working Model for L_2 Acquisition

presented by Krashen (1980) and Dulay and Burt's Affective Filter Hypothesis (1977).

According to this model, an increase in language proficiency results primarily from subconscious processing which is called acquisition, and, to a much lesser extent, from conscious processing called learning (Krashen, 1980). Subconscious processing is responsible for initiating speech for fluency; conscious processing only corrects output.

The subconscious processors are the filter and the organizer. According to Dulay and Burt, the affective filter is like a door, opening to allow language input to enter when the learner's affective needs are met. Motives for learning and emotional states, e.g., anxiety, self-confidence, determine whether or not input is blocked. A low affective filter is necessary to allow input to enter the organizer where it will be classified and grouped into a language system. The developing language system in the organizer is called interlanguage. The organizer is postulated because interlanguage changes in predictable ways in both children (Dulay and Burt, 1975) and adults (Bailey, Madden and Krashen, 1974). Despite the first language of the learner, a large number of the errors are similar to developmental errors in English.

The conscious processor is the monitor (Krashen, 1980). The monitor corrects language but cannot create it. It depends on the ability to think abstractly (age), on a focus on the form of language, on the learner's knowledge of rules, on time to apply the rule, and on the learner's concern about correctness.

The Input Hypothesis

According to Krashen (1980, 1984), subconscious acquisition, the main route to language proficiency, will only occur in an appropriate

language environment. The focus must be on content, not grammar. Language must be comprehensible. Concrete referents (immediate environment, pictures, or physical actions) are recommended to make language comprehensible. Speaker models should be valued people - peers over teachers and parents, and own ethnic group over non-members. As children understand language before they can produce it, time for a silent period is required.

Krashen (1984) includes reading and listening as well as viewing as sources of comprehensible input. His input hypothesis says, "Comprehensible Input for acquisition is input at the 'i + 1' level." That is, "input to stimulate acquisition must by definition contain some structures and vocabulary that are only slightly beyond the student's level" (1984, pp. 264, 265). The student's present "level of language competence" is i (Krashen, 1980, p. 170).

ESL researchers appear to have accepted Krashen's input hypothesis since recent research has focused on how to make input more comprehensible. Long (1985) has been concerned with how classroom organization affects student interlanguage; whereas, Janda (1985) has investigated note-taking as a simplified register and compared it with other simplified registers. Research in L_2 reading also reflects concern for comprehensible input. Recently, researchers have been very careful to present readings which were familiar in content and similar to classroom materials in format (Stanley, 1984; Connor, 1984; Carrell, 1984; Goldman, 1983).

Comprehensible Input in L_1 Reading

Reading teachers have long recognized that books must be comprehensible if skills are to improve. Betts (1957) was one of the first to define independent, instructional, and frustration level materials.

His levels of reading are presented in Figure 2. This figure also contains Silvaroli's definitions, which were used in the present study, and Krashen's definitions as gleaned from various readings by the researcher. Traditionally the percentage correct on factual and inferential questions has been accepted as a product measure of the comprehensibility of the text.

Today, commercial informal reading inventories are one way commonly used to estimate appropriate reading levels for independent and classroom reading (Helgren-Limpesis, 1986), and to aid in placement of ESL students (Edmonton Public School Board ESL Assessment Battery, 1984). Silvaroli's Classroom Reading Inventory was used in the present study to determine independent, instructional, and frustration levels. One purpose for obtaining this information was to verify or reject Cummins' finding that it takes New Canadian children, who arrive at age six or later, between five and seven years, on the average, to approach grade norms in English cognitive/academic skills.

The researcher tried to ensure that the rest of the input was at independent or instructional level. For example, on a note-taking task, the teacher talk and content reading were on a familiar topic, care of the eyes. Because the teacher talk was first, students could ask questions to make the input comprehensible. The picture task depicted a scene; it was a simple black and white picture with four characters standing in front of a building. Omaggio (1979) found that pictures of this kind presented at the beginning of a story improved second language reading comprehension.

Level of Reading	Definition	Bett's Score for Inferential and Factual Questions	Silvaroli's Score for Inferential and Factual Questions
Betts' basal level Silvaroli's independent level Krashen's i	The student's present level of reading competence, the reader comprehends comfortably on his own	at least 90 percent	at least 90 percent
Betts' instructional level Silvaroli's instructional level Krashen's i + 1	The level at which the student can comprehend with some guidance	between 75 and 90 percent	between 75 and 90 percent
Betts' frustration level Silvaroli's frustration level Krashen's i + 10, i + 20, ...	The level at which a person appears to be unable to comprehend even with guidance	*less than 50 percent	less than 75 percent

*Betts does not account for scores between 50 percent and 75 percent

Figure 2. Levels of Reading from an L_1 and L_2 Perspective

Rationale for the Focus on Process

Over the past decade, both L_1 and L_2 researchers have become interested in determining the processes used by readers as they interact with graphic, oral, and pictorial input (Piper, 1985; Fagan, 1984). For reading specialists, two types of theories of reading have caused this change from a product to a process approach. Goodman's (1969) psycholinguistic theory claims that readers construct meaning by using graphic, syntactic, and semantic cues from the text. Inferences are made about the processing by studying oral reading errors. Discourse processing theorists - Kintsh, Van Dijk, Schank and Abelson, Rumelhart, Meyers, and Mandler and Johnson - postulate that readers use their schemas to interact with text (Singer, 1985). Inferences are made about the cognitive processes used by analyzing free recalls. Kalmback (1986) notes that recalling has been widely used in language based studies for 60 years.

Fagan (1984) has developed comprehension categories for analysis of recalls. The categories - text exact, text specific, text embedded, text entailed, text inferential, text experiential, and text erroneous - are used to compare the text and the recall. These categories are refinements of Drum and Lantaff's 1977 categories. The theoretical basis for this system is Fagan's Semantic Potential Interactive Processes Model of Reading. The next section discusses this model and documents second language research which supports it.

Semantic Potential Interactive Processes Model of Reading

Fagan's Semantic Potential Interactive Processes Model was initially postulated as an oral language theory (Fagan, 1981) and later

applied to print as a model of the reading processes (Fagan, 1983). Briefly, the model claims that graphic input has the potential to evoke meaning only when there is interaction between the reader and the graphic input. The meaning derived from this interaction may be author-intended meaning (comprehension), or may be reader-related. This depends on a multitude of factors which affect the interaction. The model is depicted in Figure 3 (Fagan, 1983, p. 1.15).

The Non-Immediate and Immediate Reading Situations

The first component of Fagan's model, the non-immediate reading situation, focuses on variables which are not directly involved in the act of reading. These factors appear to be similar to those studied by Ulla Connor (1983). She surveyed the research on factors related to L_1 English reading skills and children's L_2 English language skills. She used these factors in a study to determine non-immediate factors which could predict L_2 reading performance in English (see Figure 4).

In her study of 91 ESL students from grades two to 12 who were attending ESL classes in Wisconsin schools, the Metropolitan Achievement Test was used as a measure of reading comprehension. Information about the non-immediate reading situation was gathered from interviews with parents, students and teachers, as well as from school records.

Regression analysis indicated that age, informal exposure to English, father's occupation, and number of students in the ESL class were directly related to reading skills. However, the maximum number of students in ESL classes was 12. The number of hours of ESL instruction per week was inversely related to reading skill level. Connor interpreted this as a positive situation because, to her, it meant that students whose reading skills were weaker received more hours of ESL

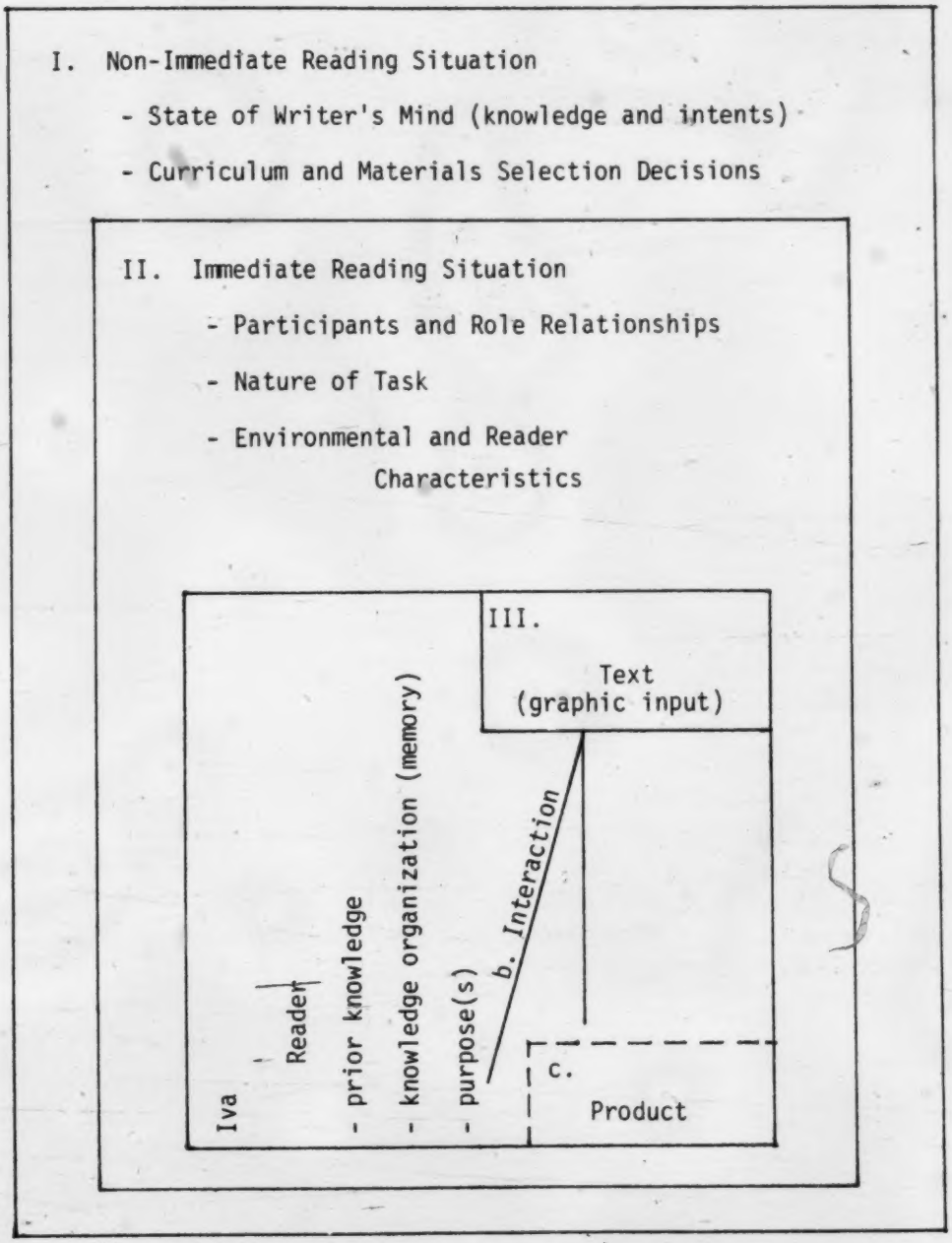

Figure 3. General Components of Fagan's Semantic Potential Interactive Processes Model of Reading

Predictor	WHAT PREDICTOR PURPORTS TO MEASURE
Individual predictors	
*Grade	Age
Length of residence in U.S.	Informal exposure to English
*Sex	Gender
*First language background	Linguistic differences among Spanish, Vietnamese, Indo-European, or others
Number of siblings	Family characteristics
Sibling position	Family characteristics
Predictors related to L_2 acquisition/learning	
Months of ESL in native country	Formal exposure to English
Months of ESL in U.S.	Formal exposure to English
*Hours of ESL instruction per week	Intensity of ESL instruction
*Number of ESL students in class (maximum 12)	Groups vs. individual instruction
*Hours of TV watching per day	Informal exposure to English
Library visits per month	Motivation to read
Sociocultural predictors	
*Percentage of English spoken at home	Informal exposure to English
Length of Parents' stay in U.S. in months	Parents' L_2 skills
*Father's occupation	Parents' job skill levels
Mother's occupation	Parents' job skill levels
Father's years of education	Parents' educational levels
Mother's years of education	Parents' educational levels
Father's occupational status	Parents' social status
Mother's occupational status	Parents' social status
Mother working at home	Exposure to L_1

* significant predictors

Figure 4. Predictors Used in Connor's Analysis of L_2 Reading Skills

instruction. Other factors which Connor analyzed were not significant predictors of L_2 reading skills.

Fagan's immediate reading situation is similar to Dulay, Burt, and Krashen's language environment. The affective environment, the role of the student, and the nature of the task are important factors in both models.

Prior Knowledge

A reader, according to Fagan, brings many types of prior knowledge to the reading task. These are knowledge of affect, knowledge of the English language, knowledge of the world, knowledge of the reading task, and knowledge of strategies.

Knowledge of affect in Fagan's model is similar to Dulay and Burt's filter. However, Dulay and Burt postulate that the filter has the power to stop language input; whereas, Fagan's knowledge of affect is only one component affecting comprehension.

Knowledge of the English language is often postulated to limit L_2 reading comprehension. L_2 researchers' findings concerning this postulate have varied. Clarke (1979) found that language competence exerted a powerful effect on the reader. Goldman (1983) found that knowledge gain in one language could be used to improve another only after mastery of basic orthographic and auditory skills in the second language. Yin's study (1985) indicated that knowledge of the language was a necessary but insufficient condition for reading comprehension. Johnson (1981) found that a text's language complexity had less effect on comprehension than did its cultural origin.

The issue of cultural origin is linked to the next type of knowledge in Fagan's theory, knowledge of the world. L_2 research in this area

centers around Carrell's definitions of content schema and formal schema. Carrell (1983) defines content schemata as "background knowledge of the content area of a text" (p. 560). Fagan hypothesizes that the episodic memory organizes this kind of knowledge. Second language reading studies have documented that content schemata in a first language may aid in developing a second language (Yin, 1985; Goldman, 1983), and that content knowledge in a first language may interfere with comprehension in another (Bartlett, 1932; Andersson, 1984; Piper, 1985).

Carrell (1983) defines formal schemata as "background knowledge of the formal, rhetorical organizational structures of different types of texts" (p. 560). Fagan hypothesizes that this kind of world knowledge is organized in semantic memory.

Several L_2 researchers have focused their studies in this area. Connor (1984) used Meyer's hierarchical content-structure analysis to compare recalls of ten native English speakers and ESL students whose first language was Japanese or Spanish. Although native speakers of English had longer recalls, both groups recalled the same high-level ideas from a text with a problem-solution organization.

Carrell (1984) used Meyer's five organizations of expository texts to write five formats of an article on the loss of body water. Eighty advanced ESL subjects were asked to write immediate and delayed recalls after silent reading. Carrell found that, except for the Arabic group, the problem-solution, comparison, and causation types were more completely recalled than the descriptions. This result agreed with Meyer's L_1 study of the four high-level organizations. Ezzaki (1984) also found consistent results when he studied 225 Moroccan ESL students.

Stanley (1984) included L_1 and L_2 speakers in his sample. He was interested in their ability to rank the quality of four summaries after reading two texts with a problem-solution pattern. He noted that the texts were "typical of the material the informants were regularly required to read" (p. 158). His four native English speakers and five ESL speakers were able to identify best and worst summaries. He concluded that there is "very firm evidence of the existence of the problem solution discourse structure" in all cultural groups considered. From comments made on reasons for their choices, Stanley concluded that ESL speakers relied on formal schemata, while native speakers relied on content schemata.

Knowledge of the reading task in L_1 reading is considered to be a crucial factor in developing L_2 reading. Robson (1981), in a study of listening, speaking, reading, and writing skills of refugees from Laos who were at a Ban Vinai Camp in Thailand, drew the following conclusions:

> . . . literacy, in any of the languages (Hmong, Lao, or Thai) produced a major effect on the subjects' performance on the ESL tests. The ability to read helped the students in their efforts to learn another language. . . . An analysis of the actual performance of the non-literate subjects shows that they learned very, very little from the program, if anything at all.
>
> . . . the subjects who could read Hmong but who had never been to school did not score significantly lower on the tests than those who had had formal education.
>
> . . . among the subjects with formal education, those who could read scored significantly better overall than those who could not (p. 473).

Cummins (1980) also hypothesizes that "previous learning of literacy-related functions of language (in L_1) will predict future learning of the functions (in L_2)" (p. 86). This is part of Cummins' BICS/CALP distinction in which he hypothesizes that knowledge and concepts concerning reading, as well as other disciplines, will transfer to a second language

as soon as new L_2 labels are attached to them.

Finally, Fagan considers knowledge of strategy. "A strategy may be considered a cognitive plan (at a conscious or subconscious level) which a learner adopts to cope with making sense of and using certain input" (Fagan, pp. 2-16). L_1 reading studies indicate that knowledge of strategies which are brought to the stage of consciousness can increase reading comprehension (Brailsford, 1981; Palincsar and Brown, 1984), but may not (Lupart, 1981 in Fagan, 1983).

In L_2 research, knowledge of strategies is an area of great interest. Krashen indicates that conscious knowledge would not increase language acquisition significantly as learning does not lead to acquisition (Krashen, 1982). Several L_2 researchers disagree and are beginning to document and to teach strategies for coping with L_2 language input.

One study used high school students. O'Malley (1985) documented many strategies which FSL students reported using to cope with language arts activities. He then used selected strategies to conduct a metacognitive training program. This program had significant results on skills in speaking about a personal topic, but nonsignificant results on a note-taking task. He contributed the lack of significance to the level of difficulty of the reading materials in the final activity.

Two studies used adult samples. Carrell (1984) taught a heterogeneous group of advanced ESL students to recognize and use top-level rhetorical organization of a text as an aid to remembering text. In the pilot tests she found that these students showed an increased ability to identify and use different types of text structure in recalls. MacLean (1986) studied the reading strategies used by French-Canadian cadets in ESL classes. She attempted to overcome the problem of reading difficulty by using readability formulas and validation by

native speakers to establish text difficulty. Then, as readers completed cloze passages, they reported the strategies which they used: within sentence, across sentence, within and across sentences, world knowledge, and intuitive strategies. These strategies varied for easy and difficult L_2 passages with respect to the percentage of responses in each category.

Cognitive Processes

Cognitive processes are "covert cognitive actions that are manifested through overt behavior in accomplishing a particular goal" (Fagan, p. 35). Fagan identifies attending, analyzing and discriminating, associating, predicting, inferring, and synthesizing as both subconscious and conscious processes. Monitoring is a conscious process.

Assessing Cognitive Processes

One way of assessing the cognitive processes used in reading is through analysis of unaided recalls. In the present study, recall protocols were broken into T-units and incomplete T-units. Fagan's 1984 categories of protocol analysis were used to compare the recalls and graphic input.

A. Text Exact: This category includes information from the text in its exact form or with minimal variations.

B. Text Specific: This category includes information recalled that has specific references within a single unit of the text (the unit chosen in this study was the T-unit).

C. Text Embedded: This category includes information specific to the text, but the unit of recall includes information from more than one unit of the text.

D. Text Entailed: This information is a superordinate statement subsuming information from more than one text unit.

E. Text Inferential: This information is added by a reader to fill in gaps in the text data and is derived from knowledge schemas of world events.

F. Text Experiential: This information consists of elaborations or embellishments which are triggered off by associations to the text information.

G. Text Erroneous: This category contains erroneous information. The information contradicts information within the text or known world knowledge. For the purpose of this study, known means known to a native Canadian who has lived only in Canada.

According to Fagan, these categories reflect underlying processes that operate on the text. Each process as it relates to specific categories will be discussed below.

Attending. For graphic input in the study the basic unit was the T-unit; and for picture input the basic units were people, the building, and the ground. For text exact and text specific categories attention is focused within a basic unit of analysis. Text embedded and text entailed categories require the reader to attend to elements in more than one basic unit. For the categories text inferential and text experiential, attending is focused on world knowledge to fill in the gaps in the text or to elaborate. This changing attention from text to world knowledge does not imply a hierarchy in processing. For example, if a teacher was giving notes on farming in Alberta, the student would not be expected to write about his week on a farm in India (text experiential).

Analyzing and Associating. Associating is the act of adding information to specific lexical items (Fagan, p. 24). Text exact recall implies that the reader has analyzed text input and associated meanings to words and propositions. The reader must process meaningful units, rather than isolated letters as memory capacity for isolated units is only 7 ± 2 (Miller, 1956). Text specific recall implies associating as well, but in this case, the use of pronouns, synonyms, and/or paraphrases indicates a transformation of the association made to basic text units.

The text experiential category implies a special kind of association called elaboration. It may be a simple association of a text concept with a schema that triggers related incidences, or the reader may add to the storyline to explain or expand information supplied by the text.

Synthesizing. Text embedding implies synthesizing across basic units. The reader has coordinated, subordinated, and/or superordinated concepts and the recall gives the relationship by embedding one or more basic units in another. Text entailed recall also requires synthesizing ideas from more than one basic unit but, in addition, requiring the assigning of a class name or label.

Inferring. Inferring involves filling in information which is not contained in the text. When a reader senses a gap in the text information, he analyzes the text and his episodic and semantic memory to see if there is a plausible explanation. That explanation is an inference. Within one culture there would be general agreement about correctness of the text inferential category. However, as inferences are based on world knowledge, one cannot determine whether or not an inference is correct without further examination. One could define world knowledge from the

perspective of a specific culture, which is the approach in this study, or one could ask the reader why they made the statement, and then judge correctness based on reported world knowledge. The latter approach is a judgement of logical reasoning that often occurs in classroom conversations.

According to Fagan, processes interact with others or occur sequentially. Some processes, like letter discrimination, may be automatic. One process may dominate or several processes may be required. A dominant process may be inferring; however, attending, analyzing, and associating are a necessary part of inferring.

Research Related to Processing Graphic Input

No L_2 research was found which analyzed recalls by using Fagan's categories of protocol analysis or Drum and Lantaff's categories. However, there are several L_1 studies which are relevant to the present study. These studies have attempted to identify the processes used by good readers and the processes used for different modes of input and output.

Recalls on Materials of Varying Difficulty

MacLean (1986) defined easy and more difficult reading by evaluating the text before presenting it to the students. The present study defines the level of difficulty for each student by using the comprehension criteria specified by Silvaroli. Several L_1 researchers have used this strategy to study the processes used for materials at different levels of comprehensibility.

Brake (1981) focused on reading materials at instructional level, while Clarke (1981) presented materials at independent level. Brake

(1981) found that at instructional level, both high and low grade two readers produced information in all recall categories; that is, reading processes were very similar. Clarke (1981) asked 32 grade six students to read a narrative story silently and to tell the story back immediately. He found that when able and less able readers recall reading materials at independent level, the amount of recall in clausal units and the percentage of recall units falling into each category were similar. Most recall was in the text specific category. There were more text entailed than text experiential units and more in the text experiential than text exact or text erroneous categories. He concluded that both groups processed information by "transforming, summarizing, synthesizing, and relating text information to prior knowledge" (p. 54).

Kavanagh (1981) analyzed recall protocols at independent, instructional, and frustration level for 10 subjects in a clinical setting. She concluded that there was more similarity in instructional and independent profiles than for frustrational level. At instructional and independent level, text specific and text experiential recall units were most common.

Recalls of Good and Poor Readers

Deane's study (1984) is the most recent study of good L_1 English readers. She examined the reading processes of 40 good grade six readers. These students read a narrative selection and then gave an unaided oral recall and completed a sentence verification task. Deane's results on the recall task were consist with the findings of previous studies of good readers (Brake, 1981). She found the following percentages of recall units across comprehension categories for the good, high divergent readers:

text exact	2 percent
text specific	48 percent
text embedded	7 percent
text entailed	12 percent
text inferential	16 percent
text experiential	10 percent
text erroneous	5 percent

Deane (1984) questioned whether all good readers used the same processes. She found that high divergent good readers made more use of text experiential than low divergent good readers; that is, they elaborated more and associated text with their prior knowledge more. High divergent thinkers produced better unaided recalls; whereas, low divergent readers performed better on a structured verification task. Her study suggests that there is not one profile for good readers; rather, there may be several. It also suggests that varying the task may affect the processes used.

Recalls on Different Modes of Input and Output

Researchers have also questioned whether processes would vary as modes of input and output varied. Brake (1981) compared oral recalls of 40 grade two children after they had read orally and silently at independent and instructional level. There were no significant differences in the types of information produced in recall categories; however, both high and low reading groups performed better after silent reading.

Coles (1983) studied 40 grade four students who silently read and listened to passages at instructional reading level. Immediate recalls indicated very similar thought processes. After listening to passages,

more able readers synthesized and organized their output more than less able readers did.

McKen (1984) studied 40 average grade four readers who read an informational passage silently. McKen found no significant difference in oral and written recalls in terms of the categories used. Very little text experiential information was given by either group.

Summary

Combining literature from two areas, ESL and Reading, was essential to establishing a theoretical and research base for this study. This was done by presenting Dulay, Burt, and Krashen's Model for Second Language Acquisition and discussing support for it in L_1, as well as by presenting Fagan's Semantic Potential Interactive Theory and documenting support for it in L_2.

Dulay, Burt, and Krashen present several hypotheses that guided the selection of input for the present study. They hypothesize that the language system in a learner's brain, that is interlanguage, will change gradually in a predictable sequence regardless of the first language. This will occur if the input is comprehensible, if there is a low affective filter, and if input is focused on content rather than grammar.

Dulay, Burt, and Krashen do not discuss the actual cognitive processes nor the knowledge that facilitates this change. Fagan's Semantic Potential Interactive Processes Theory is an L_1 theory which discusses the following types of prior knowledge stored in the brain: knowledge of affect, knowledge of the English language, knowledge of the world, knowledge of the reading task, and knowledge of reading strategies.

It also defines several cognitive processes used to interact with graphic input. Fagan has relied on his theory to develop a classification system that can be used to compare linguistic input and output. Inferences can be made regarding the cognitive processes and knowledge used by studying the amount of output in each category. This chapter has documented the L_2 research which supports Fagan's model and, on the basis of this support, his model appears to be an appropriate theoretical base for ESL reading research.

Chapter III presents the design of this study.

CHAPTER III

THE EXPERIMENTAL DESIGN

This chapter contains a description of the experimental design of the study and of the participants as well as a description of how the data were collected. The interview questionnaires constructed and used, the test instruments employed, and the treatment of the data are also discussed.

Experimental Design of the Study

This study was carried out to provide information on ESL students going from ESL and Transition Programs in junior high school to the regular senior high school programs.

To obtain the required information, teacher and student questionnaires were developed. Tests selected were those used by reading specialists working with Canadian students because the participants were entering the regular school program. Participants also completed some typical ESL classroom activities.

The Sample

Administrative officials granted permission to this researcher to interview ESL teachers, and to interview and administer language arts tests to students who were moving from ESL and Transition Programs at three junior high schools to regular senior high school programs. Two of the junior high schools were inner-city schools, and one was in a rapidly developing sub-division. There is no standard curriculum for the ESL program, so the teachers designed the courses.

Of the 26 students identified, six were enrolled in transition programs and in ESL programs. Students in the transition programs were taking regular junior high core subjects, but received remedial assistance from an ESL teacher when they or their classroom teachers requested it. ESL students in two of the schools spent their day with ESL teachers; at the other school they took some option classes in the regular program. Two students were dropped from the sample due to problems with scheduling testing times during May and June, 1982. A detailed description of the sample in terms of age, number of languages read or spoken, years of schooling, etc., will be presented in Chapter IV.

Collection of the Data

The data for this study were collected from May 7 to June 22, 1982. The three ESL teachers were interviewed on May 7, May 11, and May 12, and appointments were made for individual and group testing of the students. All testing of the 24 students occurred during regular class time from May 11 to June 22, 1982. Each student was given four sessions: a 15 minute face-to-face interview which included screening tests, a two-hour group test, and two one-hour individual test sessions. Small rooms in the schools were used for individual sessions and classrooms were used for group tests.

The 15 minute sessions were scheduled for May 11, May 12, and May 14. The sessions began with an explanation of the purpose of the study. The students were told that test results could be used to help to improve ESL programs and that, if the high school teachers contacted the researcher, individual reports would be available. Some students expressed concern that this testing would influence their grades in

school. This concern was discussed and the purpose was restated. Next, the student interview schedule was completed. If students did not understand a question or if they had previously provided the information while answering another question, the student interview schedule was modified. Following the interview, Schonell's Graded Word Spelling Test, Form A and The Classroom Reading Inventory, Form D, Part I were administered as screening tests; that is, to determine approximate grade level for other diagnostic tests. At one school, scheduling sufficient individual sessions was a problem, so Schonell's Graded Word Spelling Test, Form A was administered as a group test. Each student attempted to write all the words, and tests were marked until 10 successive errors occurred.

After this initial testing, group sessions were held in classrooms on June 4, June 8, and June 10, 1982. The testing time was approximately two hours. The group tests and tasks were:

1. Test of Adolescent Language, Subtest #V: Reading/Vocabulary and Subtest #VIII: Writing/Grammar
2. Written Picture Description/Story
3. Note-taking activity

The group testing varied from school to school. At one school the students changed classrooms every 40 minutes. This break in the testing was not disruptive, perhaps because it was part of the students' regular schedule. At another school, there was some delay in finding a room, and there were several interruptions as individual students had to leave the class to complete tests elsewhere. In this school, students required longer explanations before they attended to the tasks, were distracted by individuals coming and going, and by loud speaker announcements. The test situation at the third school was close to ideal, as the

students wrote in a quiet room and there were no interruptions. They attended to the task more quickly than the other groups and used their time very effectively. They took a break when the other classes were dismissed, about half way through the testing.

When students asked for a word to be defined, the researcher defined the word and they underlined the word in the text. This was done to ensure that the tasks were comprehensible to the students.

Two one-hour individual sessions were scheduled for each student. These sessions occurred during class time from May 26 to June 22. Some rescheduling was necessary to accommodate school and individual commitments; however, most of the students were able to complete the following tests and tasks:

1. Silvaroli's Classroom Reading Inventory, Part II (1982)
2. Peabody Picture Vocabulary Test, Form A
3. Reading/Everyday Activities in Life, Form A
4. Oral Picture Description/Story

The Interview Questionnaires

This part of the research focused on the non-immediate reading situation including factors in the home, the community, and the school which could affect L_2 and reading achievement.

To document factors related to L_2 and reading achievement, face-to-face interviews were employed (Williamson, 1977). In deciding which factors to include in the students' interview, the students' right to privacy was discussed with an ESL professor, and 18 questions which were not too personal were formulated. These questions were grouped under the headings of language, schooling, health and adjustment to Canada, and hobbies and interests. This sequencing placed more personal

questions nearer the end of the interview. Because these questions are often taught in ESL programs, pretesting was considered unnecessary. However, specific questions were considered as a guideline and a face-to-face interview was chosen because it would allow for rewording and for students to expand on topics if they chose to. One question, i.e., What is your main language?, required rewording for several students.

The teacher interview has seven questions designed to obtain information about the ESL programs, the ESL teachers, and the students. Copies of these interviews, which three teachers and 24 students completed, are found in Appendix A and B, respectively.

Test Instruments

This section lists the criteria for choosing tests and tasks to answer the research questions. Individual tests and tasks are described and the rationale for choosing each is discussed. Finally, administrative procedures are noted.

Criteria for Choosing the Tests and Tasks

In selecting the tests and tasks to answer the research questions, several factors were considered.

1. Because ESL students were entering a program in which they had to compete with native speakers of English, all tests chosen were those used with L_1 speakers of English.
2. As the students were approximately 15 years old, all tests were appropriate for use with adolescents.
3. These students often represent their parents in the business world as well as studying full time. For this reason, tests which would give an indication of functional literacy and tests which would

indicate academic skills and processes were used.

4. Finally, tests were chosen to sample reading and reading related activities on an individual as well as on a group basis. The group assessment gave an opportunity to observe students in a classroom setting while the individual evaluation gave a more detailed and personal view of each student.

Tests Used for Product Analysis

The following instruments were used to collect achievement data.

Reading/Everyday Activities for Life, Form A (1977) (R/EAL). This is a criterion referenced test of functional literacy. The students are asked to read a selection silently and then to write answers to five oral questions. There are nine selections and 45 questions in total. This test was designed to sample the ability to cope with reading materials encountered in daily living in North America. It was chosen for this study because employment, shelter, and orientation to new surroundings are immediate concerns of New Canadians and the focus of many ESL classes.

The original items were field tested on 300 American students from age 10 years to adult. Most students had reading problems. According to the manual, the sample for reliability and validity data included 434 people (M = 196, F = 265), from 16 to 21 years old, who were in a residential federal manpower training program in the United States. Their average score on the Stanford Achievement Test was grade 5.2. The KR-20 was 0.93 and the correlation with the Stanford Achievement Test was 0.74 (Lichtman, 1977). The scores obtained are expressed as percentiles.

Silvaroli's Classroom Reading Inventory (1982) (CRI). This is a four part informal reading inventory with graded word lists in Part 1 and graded passages with pictures in Part 2. There are factual, inferential, and vocabulary questions after each passage. Validity of passage difficulty is based on readability estimates from Dale-Chall, Flesh, Spache, and Fry. The passages are typical of those found in basal readers.

This test was chosen because it was used by reading specialists in the school system involved in the study. It has three equivalent forms to allow change if a topic was unfamiliar, and it is easy to administer. The comprehension questions were given according to directions in the manual and the independent, instructional, and frustration grade levels were determined. The independent level is the level at which a person comprehends comfortably on his own. Silvaroli defines it as the grade level at which 90 to 100 percent of the comprehension questions are answered correctly. The instructional level is the level at which a person can comprehend with some guidance. In Silvaroli's test this is the grade level at which 75 to 90 percent of the comprehension questions are answered correctly. Frustration level is the level at which a person appears to be unable to comprehend even with guidance. When less than 75 percent of the comprehension questions are answered correctly, that level is frustration level.

The oral reading was not analyzed because reading miscues were mixed with pronunciation that was not clear. Clarke (1979), in his miscue study of Spanish and English ESL adults' reading performance, selected only subjects whose speech was relatively clear. This decision was based on a previous study by Riggs (cited in Clarke, 1977) who found that clarity was a prime consideration in ESL miscue analysis projects.

Even though clarity of speech was a requirement, up to three coders classified the data to resolve coding disagreements. In the present study, the researcher expected clear speech because these students were entering the regular program. Such was not the case so the miscue analysis component was dropped.

Brake (1981) found that L_1 readers performed at a higher instructional level for silently read passages than for orally read passages. This finding suggests that the students in this study may have lower product scores on this test than might be expected if silent reading had been used.

The Test of Adolescent Language (1980) (TOAL). This is a standardized test which compares student performance within specified age groups. The standardization was done on a sample of 2,723 students from 17 states and three Canadian provinces. The scaled scores are based on the cumulative frequency distribution of raw scores made by students of varying ages. These scores have a mean of 10 and a standard deviation of three.

In Subtest VIII: Writing/Grammar, students read a series of brief sentences and then formulate a single sentence which incorporates all the important ideas from the stimulus sentences. Test-retest reliability is 0.90 (Hammill, 1980). This sentence combining test was used because it is recognized that the ability to classify ideas accurately is important for remembering what is read (Smith, 1982), and because ESL teachers recognize that sentence combining improves understanding of syntax and writing (Kameen, 1978). The scores used are scaled scores.

Subtest #V: Reading/Vocabulary requires students to read three stimulus words, all of which are related to a common concept. From

four possible responses the student selects two words that are most closely associated with the three stimulus words. Gerhard (1975) has emphasized that concepts must be associated into existing concept systems in order to be useful. This test was chosen because its focus on relational meaning is compatible with Gerhard's view of concept formation. Test-retest reliability is 0.8 (Hammill, 1980) and correlation of scores with those on the Peabody Picture Vocabulary Test (1965) is 0.54.

Schonell's Graded Word Spelling, Form A (1942) (SGWS). This is a standardized test consisting of 100 words graded in difficulty from primer to grade 10, with 10 words per grade level. The reliability is 0.96 on test-retest of 195 English children (Burros, 1959). There are no validity data.

In developing the test, Schonell used words from his Essential Spelling List. He administered the test to approximately 1,000 English children, about 200 in each age group from five to 15 years. Then 10 words, each spelled correctly by 45 to 55 percent of the age group, were chosen for each age group (Burros, 1959).

Although it was developed in 1942, it was chosen for this study because it has a wide range of scores, and because it is widely used in Alberta (Malicky, 1983). The raw scores were converted to grade equivalents based on the English school system.

Peabody Picture Vocabulary Test, Form A (1965) (PPVT). This is a standardized test that gives an indication of receptive language level or passive vocabulary. The child is shown four pictures and is asked to identify the one which best represents the word presented orally by the examiner. According to Burros (1972) it has moderate reliability

(o.67 to 0.84 on alternate forms) and largely unestablished validity. This may be because, although there is a good cross section of American English words (Dunn, 1965, p. 32) indicating content validity, the standardization was done on 4,012 white children from the Nashville area. It was chosen for this study because it has a wide range of scores (3 years 3 months to 17 years 6 months) and because the researcher hypothesized that receptive language level was a better indicator of reading vocabulary than expressive language level. It was scored according to the directions in the manual and raw scores were converted to age equivalents in months.

Tests and Activities Used for Process Analysis

CRI. Students were requested to give an oral recall of the graded paragraphs on Part 2 of the CRI. This was done to determine how students organized information without teacher guidance, to determine the amount of information reported, to determine the relationship between information reported and the text, and to infer how the students were processing written language as they read.

The students were given the following directions before reading the passages orally:

> I am going to give you some short stories to read.
> When you finish reading a story I want you to tell me what you have read.

Picture description/story. A black and white picture from an ESL book of plays by Hines (1980) was shown to each student (Figure 5). During the individual interviews, each student was asked to describe it orally or tell a story about it as though he were talking with a friend over the phone. During the classroom part of the study, students were

Figure 5. Picture from Hines (1980) showing Seven Basic Units

asked to write about the picture as though it were a classroom assignment to be graded and recorded.

The purpose of this activity was to determine and compare language use in each setting: oral language in a natural setting and written language in a formal setting.

Note-taking activity. In order to compare comprehension while listening to an oral classroom presentation and while reading the same expository topic, an article called Reading Health was used. This article was taken from a remedial reading text used in the Reading 10 program.

Three adults assisted the researcher by studying the article and identifying important details and generalizations. One of these adults has an M.Ed. in Language Arts, another an M.Ed. in ESL, and the third has a B.Ed. with a history major and two years teaching experience in a teacher training college in Nigeria. Their notes were compared with the researcher's, and when three out of four identified the same details or generalizations in the article, these were underlined.

The article is in Appendix C. The more relevant details and generalizations are underlined and T-units are marked with slashes. The method used to identify T-units is described later in this chapter.

The researcher gave a classroom talk based on the article. Before the talk was given, students were asked to take the best notes that they could, writing in pen. As the talk was given, questions were answered to clarify vocabulary problems. After the talk, the students were given the article and instructed to read it and to adjust their notes, in pencil, if they saw fit.

Analysis of the Data

Analysis of Product Data

In order to focus the description of these students, the data from the teacher and student interviews and the data obtained by scoring the tests were analyzed using Pearson Product-moment correlations. The probability level of $p \leq .05$ was chosen as the degree of confidence necessary for significant correlation because the sample was small ($n = 24$). Pearson Product-moment correlations were determined by making the factors related to L_2 and reading achievement the independent variables and the test scores on product measures the dependent variables (see Figure 6).

Analysis of Process Data

The recalls from the CRI and note-taking activities were analyzed using Fagan's 1984 comprehension categories for protocol analysis. Fagan has adapted these scoring categories from those developed by Drum and Lantaff in 1977. The recalls from the picture description were analyzed by using categories for analysis which are an extension of Fagan's categories. These categories were developed by this researcher and her advisor so that information in the recall could be compared with that in the picture.

The oral recalls from the CRI and the picture descriptions were transcribed and then mazes and story-telling conventions were eliminated as they deal with narrating what is said rather than with the content of the utterance. Mazes, according to Fagan, are of four types:

1. Filled Pause (audible noise). These were sounds like: ah, um, etc.
2. Interjection. These were words or phrases like: I think, yes, let me see, wait a minute, etc.

Factors Related to L_2 and Reading Achievement	Test Scores
age in months	
number of languages spoken	R/EAL: percentiles
number of languages written	CRI: grade level for independent, instructional, and frustration level
number of languages read	
years of education before coming to Canada	TOAL, Subtest V and VIII: scaled scores
exposure to English before coming to Canada	PPVT: age in months
years of education in Canada	SGWS: grade equivalent where age five equals grade one
number of schools attended in Canada	
years in ESL program	
program type in Canada	
ESL teachers' opinions of future school success	
English spoken at home	
Similarity of homeland's education system to Alberta's education system	

Figure 6. Pearson Product-moment Correlation Variables

3. Filled Pause (repeat). This was repetition of words or parts of words. The words or parts of words spoken initially were classed as repetition. It was assumed once the reader repeated he ended the pause and continued his thoughts or ideas.
4. Correction/Edit. This consisted of a jumble of words preceding a change in direction of what the person was about to say or preceding a better choice of words.

Next, the recall protocols, picture descriptions, and notes from the note-taking task were broken into T-units and incomplete T-units by using slashes. A T-unit is a single independent clause together with any subordinate clauses that may be grammatically related to it. Incomplete T-units are a group of words which do not form a grammatically correct T-unit but carry a content message similar to that of T-units. The T-unit was chosen because it gives a profile similar to the clausal unit but is less time consuming to work with (Fagan and Currie, 1983). The input passages from the CRI and Reading Health were also broken into T-units.

The units of analysis for the picture (Figure 5) were determined as follows. Each person is one unit and the building is another. The ground is a third. The researcher chose those units because in a natural setting, although we may focus on a smaller detail, we relate those details to the units specified above.

Fagan's categories and the picture analysis categories are presented together in Figure 7. This, it is hoped, will aid comparison of the categories.

Interrater reliability. The researcher has analyzed L_1 recalls using Fagan's 1982 categories (Fagan and Currie, 1983). However, to

Figure 7. Comprehension Categories for Protocols of Recall and Picture Description

FAGAN'S COMPREHENSION CATEGORIES FOR PROTOCOL ANALYSIS OF RECALLS OF DISCOURSE	EXTENSION OF FAGAN'S CATEGORIES FOR USE WITH PICTURE INPUT
A. TEXT EXACT This category includes information from the text in its exact form or with minimal variations. It is assumed that this information was stored in rote fashion or is automatically constrained by other information and is "reproduced" in a similar state.	This category was not used as units in the protocols were T-units and in the input were pictures.
A1. Verbatim Recall The information is a direct recall of the lexical items of text. Text: The boys were late for school. Protocol: The boys were late for school. Substitution of a determiner, a verb form or a function word which does not change the meaning of the unit will also be placed in this category. Text: He chased the animal. Protocol: He chased an animal. Text: People were waiting at the door. Protocol: People were waiting by the door. Text: The student had been absent many times. Protocol: The student was absent many times.	
A2. Partial Recall A significant concept(s) (noun, verb, attribute) is/are omitted in the verbatim recall.	

Text: After robbing the store, the convicts raced for their car.
Protocol: The convicts raced for their car.

Text: The children had never seen such a tiny colt.
Protocol: The children had never seen such a colt.

A3. Vague Statements

A reader uses at least one term which is exact from the text. This is usually the subject or head word of the statement. With this head word there is a relational statement which is not incorrect in terms of the text data, but is vague in the sense that it may have been produced without noting specific text referents.

Text: (describing the manufacture of various items of clothing)
Protocol: They made many kinds of things.

B. TEXT SPECIFIC

In this category is placed information recalled that has specific references within a single unit in the text. The reader may have "transformed" some of this information by reordering or substituting lexical items.

B1. Substitution of Pronouns

A pronoun is used in place of a noun within the text unit.

B. TEXT SPECIFIC

This category has information that has specific reference to information within a single unit of the visual.

B1. Labeling

The viewer names what is seen.
Protocol: There is a boy.
That's a sidewalk.
There is a coat.

Text: People were very kind to the stranger.
Protocol: They were very kind to the stranger.

Text: The truck went off the road about one half mile from the settlement.
Protocol: It went off the road about one half mile from the settlement.

B2. Synonymy of Elements

The operational definition of synonymy is context dependent and may refer to (a) substitution of one word for another so that semantic and grammatical features are preserved, (b) the sequencing of lexical items from a unit such as the preposing of prepositional phrases or substituting an active for a passive, and (c) a paraphrase of the original unit which in the subjective opinion of the scorer has the same conceptual referents and has definite correlates in the text unit. The protocol unit and the text unit should evoke similar specific referents.

Text: fish
Protocol: salmon

Text: The house was on fire.
Protocol: The house was burning.

Text: In twos and very slowly the mourners walked in processing.
Protocol: The mourners walked in procession very slowly and in twos.

Text: He said good night and went to bed.
Protocol: He decided to call it an evening and said good night.

B2. Describing

The viewer associates parts in the single unit. He describes what is seen. He tells about a single unit.
Protocol: The woman has a fur coat.
The fat man is not talking.
The window is made of curved glass.

C. TEXT EMBEDDED

The information in this category is specific to the text but the unit of recall includes information from more than one unit of the text.

C1. Embedded Information

Embedding occurs when lexical items from two or more separate utterances are combined into one. The utterances may be continuous or may be separated in the text. At least one of the specific key items or its synonym is used in the embedding. The observer should be able to match up the information in the embedded unit to the information in the original items.

Text: She jumped into the icy water. She was trying to save the swimmer who was in trouble.

Protocol: She jumped into the icy water to save the swimmer in trouble.

Text: The stranger pitied the man. He had tried to help but had not been very successful. The stranger felt deep remorse but knew that the man would have to settle his own problems without outside interference. The stranger stared quietly as the man walked slowly away.

Protocol: The stranger pitied the man who walked slowly away.

C2. Noun/Pronoun Substitution

Information in one text unit is designated by a noun and in another text unit by a pronoun. When the reader recalls these units he/she uses only the noun or the pronoun for this concept.

C. TEXT EMBEDDED

This category has information that has specific reference to information contained in more than one unit of the visual.

C1. Combining

The viewer names what is seen or describes what is seen in more than one unit.

Protocol: A mom and dad are talking to the boy.
The lady with the fur collar is holding the fat man's arm.

Text: The man won the lottery. He was so happy.

Protocol: The man who won the lottery is so happy. Or, He was so happy because he won the lottery.

D. TEXT ENTAILED

The information retrieved is a superordinate statement subsuming information from more than one text unit. It may be assumed that at the time of comprehending, the reader "constructed" information and retrieves this construction at the point of recall or that the reader reconstructed the information at the time of recall.

D1. Synthesis

A synthesis is a compilation of information from one or more text units. It does not contain key lexical items from the specific units summarized but is expressed in a hierarchical or superordinate manner, or by a generalization. In reverse, the text unit(s) is/are actually an elaboration of the summary statement. However, unlike synonymy of elements (B2), the specific concepts of the text cannot be known from the recall statement.

Text: He quickly raced to the landing, stripped off his clothes and jumped into the icy water. His only wish was to rescue the frightened little boy.

Protocol: He did a very brave deed.

D. TEXT ENTAILED

A class name is used to subsume information from more than one text unit.

D1. Synthesis

The viewer has analyzed the information and organized it into a unit or units which he names.

Protocol: A family are talking.
The other couple are standing together, arm in arm.

Text: While visiting her Aunt Lizzie at the farm last weekend, Terri helped harvest some carrots, peas, zuchini, and tomatoes. (Note that in contrast to B2, the specific concepts of the text unit cannot be recovered from the protocol unit. However, the text unit does allow for an elaboration of "vegetables".)

E. TEXT INFERENTIAL

This information is added by the reader to fill in gaps in the text data and is derived from knowledge schemas of world events, such as a rodeo, restaurant, school. This information may have been constructed at the time of input and retrieved at recall or reconstructed at the time of recall. Unlike Synthesis (DI), the text does not provide an elaboration or expansion of the referents. Additional data to the text information must be generated by the reader. That is, a gap must be bridged.

E1. Inference

An inference may include either a logical reasoning or an instantiation, that is, the filling in of information which is not specified. The latter is not often referred to as a pragmatic inference and may be stated in a contradictory form and still make a plausible statement.

Text: John and Bill left for school at the same time and walked at the same rate. But Bill lived several blocks

E. TEXT INFERENTIAL

This information is added by the viewer to fill in gaps in the visual and is derived from knowledge schemas of world events, such as a holiday festival, or going to church. The viewer has analyzed the visual and has labelled the events, feelings or actions expressed by adding data to what he sees.

E1. Inference

The viewer fills in information suggested by the visual but not specified. Most viewers would agree with these statements as they are text bound.

Protocol: The lady with the feather is disapproving.
It must be a colored window.
One couple is rich.

farther away than John. John just reached the school on time.

Protocol: (Logical): Bill was late for school.

Text: The mother bundled the children in their parkas, scarves and mittens. She was sure they all had a hot lunch as they left for school.

Protocol: (Pragmatic): It was a cold day. (Contradiction: It was not a cold day. Perhaps the mother was mentally deranged.)

F. TEXT EXPERIENTIAL

This information consists of elaborations or embellishments which are triggered off by associations to the text information. They are not constrained by the text in the same way as inferences; that is, while two independent observers should agree on the inference, such agreement would not be expected for elaborations. The reader is empathesizing from experience.

F1. Experiential Intrusions

This information is related to the theme of the text passage but is not specifically suggested by a particular unit in the text. It does not convey the text information but is an addition of information from the reader's background.

Text: The little boy had disobeyed his mother. She had told him to wait by the car while she went back to

F. TEXT EXPERIENTIAL

This category has elaborations or embellishments which are triggered off by associating the visual with individual world knowledge.

F1. Experiential Intrusions

The viewer fills in information suggested by his world knowledge as he views the picture.

Protocol: The father told his son to be quiet.

The church looks like the church at home.

the store for the other bag of groceries.

Protocol: One time I saw this woman looking everywhere for her little boy. He went up the escalator when she wasn't looking.

F2. Storyline Additions

These units include additions to the information within the storyline. The origin of these additions appears to be based on the reader's experience with stories and the kinds of goals or actions which are appropriate in a particular context and thus are predictable from the story information. Also included are expressions that indicate saying, thinking, etc., which are not specifically stated in the text. These are not inferences since they are not immediately constrained by a specific part of the text.

Text: (describing a character's actions that led up to making a decision)

Protocol: He thought he would catch the next train and finally settle the matter completely.

Text: The stranger saw that the man was weak and finally dug a hole through the ice for him.

Protocol: The man said "I am not able to dig the hole." But the stranger said "You got to keep trying and trying." The man said "I just can't do it."

F2. Storyline Additions

These units are added to explain the visual by creating a storyline or an explanation of the action/scene.

Protocol: The boy swore at the rich couple. Maybe he broke a window in the rich couple's house. In the middle of the window there is a eye, just like evil magic, evil and magic.

F3. Evaluations

These units make a value judgement.

Protocol: Parents shouldn't yell at children.

G1. TEXT ERRONEOUS - SPECIFIC

The category contains information that is erroneous within Categories A, B and C and relates to errors in specific text information.

G1a. Errors in dates and proper names

These errors constitute memory errors or are due to lack of attention to the text. The appropriate slot is there but is inaccurately filled.

Text: Sir Wilfred Laurier
Protocol: Sir Wilfred Bennett

G1b. Erroneous expansions/additions

These units (i) separate attribute/argument phrases into units that are conceptually wrong, or (ii) add information that is contradictory with information in the text. These may be due to lack of experience with the content and/or the ambiguity of the text.

Text: They ground corn by pounding it.
Protocol: They ground corn by heating it.

G1c. Erroneous Embeddings

In combining information the reader confuses information about a particular referent.

G1. TEXT ERRONEOUS - SPECIFIC

This category contains information that is erroneous within Categories B and C.

G1b. These are labeling errors.
Protocol: There is brick. (The wall is stone.)

These are descriptive errors.
Protocol: The striped scarf. (It is checkered.)

These are pronunciation errors.
Protocol: He is wearing a sweet.

These are errors caused by confusing languages.
Protocol: The man wearing a vallet. (gilet is French for vest)

G1c. In combining information the reader confuses information about a particular referent.
Protocol: The mother and the son wearing winter coats. (The boy isn't.)

Text: As the man was scraping snow off the ice he saw someone standing beside him. The man said to the stranger, "I don't think I can finish visiting my lines because I am so cold and hungry." He dug new holes for the man and also showed him where to get caribou.
Protocol: A stranger came alone. He helped the man dig holes through the ice and then they saw a caribou herd go by.

Text: Mrs. Gray sat down to watch the TV announcer on her weekly show about gardening.
Protocol: Mrs. Gray sat down to watch the TV announcer on his weekly show about garden.ng.

Text: The dogs lay down and refused to move. The man dragged the sled all the way to the cabin.
Protocol: The dogs dragged the sled to the cabin.

One lady is wearing high boots and the other is wearing low boots. (should be high heels)

G2. TEXT ERRONEOUS - NON SPECIFIC

The erroneous information in this category is incorrect in relation to Categories D, E, and F. This erroneous information may be due to faulty construction at the time of input or faulty reconstruction at the time of recall.

G2. TEXT ERRONEOUS - NON SPECIFIC

The erroneous information in this category is incorrect in relation to D, E, and F categories or inconsistent with previous statements.

G2a. Inaccurate/incorrect synthesis

Information from the text is (i) designated by an inaccurate superordinate referent, (ii) is generalized in a way which does not convey the gist of the passage, or (iii) contradicts real life events not mentioned specifically in the text.

Text: We shouldn't always knock computers when they seem to make an error on our accounts. Granted we might be upset when our balance is nil and the computer still insists that we send a check for $40.00. However, if computers were assigned to do the many menial tasks of administrative affairs and leave more time for humans to use their intelligence to solve the more significant problems, then computers and humans would be compatible and would coexist in harmony.
Protocol: Computers are taking over.

Text: While visiting her Aunt Lizzie at the farm last weekend, Teri helped harvest some carrots, peas, zucchini, and tomatoes.
Protocol: Last weekend Teri helped her Aunt harvest some fruit.

G2b. Faulty Inference

The reader draws an incorrect inference from the information given in the text.

G2a. These are synthesis errors
Protocol: They are <u>all</u> wearing <u>winter coats</u>.

G2b. These are errors in inferencing.
Protocol: They are neighbours.

Text: Mrs. Gray knew it was two o'clock because she could hear Henry, her parrot squawking. He wanted to watch his favorite TV program, but Mrs. Gray thought that too much TV was bad for Henry's eyes so she told him to rest instead. He squawked even louder so she finally turned on the TV set. After Henry's show was over, she stayed to watch a show on cooking.
Protocol: Mrs. Gray came in from the garden to watch her TV show.

G2c. Inaccurate World Information

The information is inaccurate or contradicts known world knowledge.

Text: (About a skiing trip but not mentioning any particular country)
Protocol; Canada is the only place where skiing is a popular sport.

G2c. The inference contradicts world knowledge.
Protocol: They like to go together and have fun.

G2d. The statement is different from or contradictory to Canadians' world knowledge. This is not really error. See the notes following the category system.
Protocol: They are standing in front of a house. (Canadians would likely say church.)

Notes on categories for use with picture input:

The evaluation category (F3) is a new one added by this researcher to accommodate statements in which students express opinions about the situation depicted. Evaluations require applying affective world knowledge (i.e., value systems) to the context.

G2d is a category of error only because this study compares E.S.L. with Canadian students (see Chapter III: Criteria for Choosing the Tests and Tasks). This category was used to point out the differences in world knowledge from one culture to another. By using an error category the researcher is trying to focus on different world knowledge. It is not the intent to imply that one culture is right and another is wrong. In the experience of this researcher, this category is very important in a classroom setting where apparent error needs to be combated with the question, "Why did you say that?"

ensure reliability of coding using Fagan's revised 1984 categories, the following steps were taken. First, the researcher and advisor coded several protocols independently and compared results. L_2 data has been found to be more difficult than L_1 data to code for miscue analysis (Clarke, 1978). Interpretation of the data in this study was also problematic. The interlanguage phenomenon is discussed in Chapter II. Because this phenomenon is well known, ESL classroom teachers are concerned more about comprehensibility than grammar. It was decided that if the intended meaning of a T-unit was clear from the context, then it would be coded accordingly. That is, the surface structures were not interpreted literally or in isolation.

Consider the following recall protocol from the study:

Recall Protocol	Interpretation by Coders
1. There were many [I can't] borders for women.	1. Borders was interpreted as barriers. (This student came from Russia.)
2. How do they build house.	2. This story tells about how they build a house.
3. good listen	3. good listener
4. and people in the back like to slow down	4. do slow down the bobsled
5. If the area is dry . . . that place will destroyed	5. will be destroyed
6. like they got intelligent just like man	6. have intelligence
7. flooder room	7. flooded room

Next, several more protocols were analyzed to ensure that interpretation of the protocols was shared.

Then, interrater agreement was calculated by using the Arrington Formula (Feifel and Lorge, 1950):

$$\frac{2 \times \text{agreements}}{(2 \times \text{agreements}) + \text{disagreements}}$$

The percentage agreement was 0.93 for the oral picture story and 0.84 for recall of the CRI passages.

Inferring and comparing the processes used. After the recall protocols were assigned to categories, the amount of recall (i.e., number of T-units in each recall protocol) in each setting was noted. Percentages of recall by category were calculated and graphs were constructed. Inferences about processing used were made and compared across kinds of input, kinds of output, and tasks assigned.

Summary

This chapter contained a description of the participants and the method of collecting data. The rationale for using each test or activity was given and the method of analysis was discussed. The student and teacher interviews were also discussed.

Chapter IV will present the results of the product and process analyses.

CHAPTER IV

RESULTS OF THE STUDY

This chapter reports the findings of this study of language arts skills and processes of ESL students who were going from ESL classes to the regular grade 10 program in a large urban area of Alberta. The findings are discussed in two sections, Product Analysis and Process Analysis. Each question is restated from Chapter I, and findings which address the question are presented. There is a summary and discussion of the results at the end of each section.

Product Analysis

For the product analysis, a probability level of $p \leq .05$ was chosen as the degree of confidence necessary for significant correlation. This was deemed appropriate in light of the small sample size ($n = 24$). Table 1 lists the significant correlations found in the study.

Question One

> Are there significant correlations between selected factors reflecting formal and informal education and scores on language arts tests?

It is the intent in this section to describe the students as they see themselves and to discuss correlations as they relate to their descriptions. Many factors in Table 1 reflect formal, as well as informal, education. For example, the years of ESL in Canada indicates formal ESL instruction as well as extensive informal contact with native speakers of Canadian English.

Table 1

Significant Correlations Between Language Arts Tests and Selected Factors Affecting Education

Factors Affecting Formal and/or Informal Education	Classroom Reading Inventory				TOAL		Peabody Picture Test	Schonell Graded Word Spelling
	Ind	Ins	Fr.	R/EAL	Rd	Wt		
Age in months			-.3606		-.3744	-.4465		
# languages spoken							.3731	
# languages written								
# languages read								
Years of education before coming to Canada								
"Equivalence" of education system in native country to Alberta's education system (see p.)	.6683			.5519	.5953	.5890	.3551	.5034
Exposure to English before coming to Canada				-			.4380	
Years of education in Canada							.4380	
# schools attended in Canada							.5769	
Years in ESL programs		.5660						-.5315
Program type in Canada								-.4148
ESL teachers' opinions of future school success	.4709	.4763	.3242	.5909	.3588	.4616	.5354	.7684
English spoken at home	-.4271							

$p \leq 0.05$

Influences Prior to Arrival in Canada. There were wide variations in the prior knowledge which these 24 students brought with them to Canada. They came from India, Brunei, China, Vietnam, Taiwan, Korea, Hong Kong, Russia, and Poland. One-half of them had studied English before arriving in Canada, and, as a group, their language knowledge was impressive (see Table 2).

Exposure to English before coming to Canada is significantly correlated with scores on the PPVT. The concepts developed when first studying a language are often concrete picturable concepts. This would explain the positive correlation.

There is also significant correlation between the number of languages spoken and results on the PPVT. This is predictable as an increase in the number of languages spoken should increase the development of concrete concepts, such as those tested by the PPVT. There is no significant correlation of number of languages written or languages read with scores on any test administered even though the ranges were greater than the range for language spoken. Perhaps reading and writing are significantly different tasks from speaking. Cummins (1980) would agree that this is the case. He makes a convincing argument that one must distinguish between surface competence (pronunciation, vocabulary, fluency, grammar) and cognitive competence (effective use of cognitive operations in the language) in order to make predictions about L_2 achievement. Another possible reason for the lack of significance may be that some students overestimated their ability to read and write.

Note also that there is no significant correlation between the number of years of education before coming to Canada and the test scores. The mean number of years of education was 5.8 years. The

Table 2

Knowledge of Language Before Coming to Canada

Native Country	Students	Languages Spoken	Languages Read	Languages Written	Students Who Studied English
India (Punjab)	4	3	1-3	1-3	3
Brunei	1	4	3	3	0
China	1	1	1	1	0
Vietnam	9	2-4	2-4	2-4	3
Taiwan	1	2	1	1	0
Korea	2	1	1	1	0
Hong Kong	2	2-3	2-3	2-3	2
Russia	3	2-3	2	2	3
Poland	1	5	7	6	1
Total	24				12

range was from zero to nine years; however, only four students had between zero and four years of schooling. The rest had from five to nine years, which is not a very large range of scores. It could be hypothesized that the type of education received was, in many cases, very different from our Canadian education. The students were asked whether or not schooling was different and, if so, how it differed from education in Alberta.

Their comments often related to how hard they worked and to the way that instruction was organized. The students from Poland said that in Poland marks were based on oral performance, everyday work, and homework, but that here, we learn for tests. The three Russian students agreed that school in Russia was harder with more content earlier and more homework. They began grade one at seven years of age. ("Phys. Ed. is a bad program here. All too easy!") Another student reported that in Taiwan they work harder and are under more pressure. Teachers spank students and afterwards tell parents. School in Hong Kong is remembered as long hours and homework. The only difference noted about Chinese school is that, "Teachers move, students sit!" The students from Korea thought education here was the same or better. They began school when seven or eight years old. In Borneo (Brunei), they pay a school fee of 40 dollars per month. One spelling error means the bamboo strap. The King is Malay so if you fail Malay, you fail the grade. One of the students from India did not go to school there. He began school in Canada when eight years old. Another said that subjects were the same, only language was different. A third said that there were many different schools. A village would have from grade one to 10. The nine students from Vietnam gave varying pictures of the education system. Most began their schooling when seven years old, although two said that they began

when five. One said that Vietnamese school began at age six, and Chinese school at age 10. Their comments, noted below, were very contradictory. This would be expected considering the situation in Vietnam at the time of this study (see Appendix D).

- In 1975, when the Communists came, school quit.
- Teachers change. We stay in room.
- Math is more difficult in Vietnam.
- More students, same subjects.
- Homework in Vietnam: memorize, reciting.
- Same as here.
- In Malaysia, I was out of school for two years.

From the student comments, one notes differences in age for starting school, in methods of discipline, in school organization, in languages used for instruction, in learning strategies, and in the effect of the political system on schooling.

In order to establish a numerical representation of these different school systems, Settlement Services of Alberta was contacted. The Settlement Services of Alberta Manpower has access to school equivalences based on documents from the Ministry of Education in Quebec (Office of Equivalence). Equivalence is based on comparing courses of study. Russia is considered to be about one year ahead of Canada academically. South China and Hong Kong public schools are equivalent. Korea, Poland, Taiwan, and Brunei are about one year behind. The Punjab school system is about three years behind; and Vietnamese education in camps was problematic. Rating for the purposes of this study is based on these equivalences. This rating does not imply inferiority or superiority, but rather difference. Each country, it is assumed, has an education system that attempts to meet the needs of the people in that country.

It would make no sense, for example, for an Arab living in a remote desert area to learn how to operate an elevator. In Russia, where education is said to be one year ahead of Canada, the political systems are very different. In Vietnam, education was disrupted because of war. For further discussion of the situation there, see Appendix D.

The correlations between these equivalence ratings and scores on the language arts tests given are significant and positive. This indicates that students whose education was seriously interrupted or students from education systems with a curriculum that is very different from ours scored lower on these tests.

There is another indication that interrupted education and different school programs are interfering with language arts progress in Canada. The negative correlations between age, and scores on both the TOAL subtests, and frustrational level on the CRI are significant. On close examination it is noted that 55 percent of the older students came from the Punjab.

Influences of Schools in Canada. Students in this study had attended schools in Canada from between 0.8 and 9.0 years. Although 79 percent of the students had attended only one or two schools in Canada, the others had attended five or six different schools since coming to Canada.

The correlations between number of schools attended in Canada and the PPVT is significant and positive. This correlation was unexpected as the relationship between vocabulary development and the number of schools attended in Canada was predicted to be negative by this researcher. The literature research suggests two possible explanations for the positive correlation. Robson (1981) found that formal schooling was not as important to developing L_2 skills as knowledge of native language.

Literacy skills, for these students, were not necessarily learned at school. Krashen (1984) would agree that language skills can improve in an informal setting. He states that comprehensible input with the focus on content is a key determiner of language development. As the PPVT has only words which are very concrete, movement from school to school may provide more informal exposure to an abundant supply of comprehensible input containing words that can be depicted by pictures. This may account for the positive correlation.

The other significant positive correlations were more predictable. An increase in years of education in Canada should result in increased concept development.

Students in this study had spent from one to three years in ESL programs in Alberta. At the time of the study, they were attending one of three ESL programs in a large urban center in Alberta. In two of these schools, more than 50 percent of the population spoke English as a second language (Therrien, 1983). In this study, seven out of eight students from one of these two schools came from Vietnam. Three of these were ethnic Vietnamese, and four were ethnic Chinese. One student was from South China. This school was moving toward an integrated model for advanced ESL instruction, with advanced ESL students grouped together for six periods per week of English. Communication and survival skills were the focus of the English instruction. The student from South China was attending all the regular classes. With financial assistance of the Educational Opportunities Fund, the transition teacher in this school worked with these students outside the regular program as an English tutor and personal counselor. She used a team teaching approach to help in the classroom. Social interaction between the teachers and families of ESL students was evident at this school.

In the other school with a high percentage of L_2 speakers, the ESL students were from Poland, Russia, Vietnam, India, and Hong Kong. Three out of eight were from Russia. The teacher of the advanced ESL students was responsible for all content areas as well as ESL instruction. There was no transition program. This teacher felt that there was a positive atmosphere in the school, and that the students were academically advanced and rich in social and cultural experiences.

In the third school in this study, 10 percent of the population spoke English as a second language. The students in this school came from Hong Kong, Korea, India, Taiwan, Vietnam, and Brunei, but no ethnic group formed a majority or near majority. The more advanced ESL students were gradually integrated into the core subjects. Math, science, social studies, and language arts were begun, in that order. The five students registered in all four core subjects were tutored by a transition teacher. The transition teacher and content area teachers worked closely to determine each student's needs and to accommodate a smooth transition from the ESL program to the regular program. This teacher also involved New Canadian parents and multicultural groups in the school by organizing cultural activities throughout the school year.

The significant correlation between number of years in the ESL program (ESL and transition together) and the instructional level on the Classroom Reading Inventory indicates that the students' reading comprehension with teacher assistance was improving. The correlation between program type and the SGWS is -0.4148. This indicates that transition students (coded 0) performed better than advanced ESL students (coded 1) on this test. This is logical as transition is a higher level than advanced ESL.

The negative correlation between the SGWS and years in ESL however, indicates that spelling worsened with years in the program. On close examination it is noted that advanced ESL students, on the average, had spent 1.7 years in ESL; whereas, transition students had spent only 1.3 years in ESL.

The only significant positive correlations across all tests are the ones for ESL teachers' opinions of future school success. These positive correlations suggest that ESL teachers in this study were good judges of students' achievement. The promotion policies which they mentioned using were: (1) standardized tests like the Comprehensive English Language Test and the English Language Syntactic Ability Test; (2) speed at which students progressed through the program; (3) parent interviews; (4) marks in regular core subjects; (5) number of students entering ESL classes; and (6) knowledge of students from personal interactions with them. Registration in the regular grade 10 program was usually based on the teacher's recommendation. However, some students enrolled in the regular program who, in the teacher's opinion, did not have a good chance of success. This occurred because it was school board policy to promote ESL students based on age factors, and because students could choose to go to any school in the system, even a school without an ESL program.

Influences of Informal Settings in Canada. Outside school, these students appear to be very much like other Canadian students. Their hobbies and interests include scuba diving, geography, science fiction, biology, ballet, dance clubs, ice skating, roller skating, basketball, soccer, swimming, baseball, fishing, piano, drawing, listening to music, working in shops and at home, travelling, and reading.

Eighteen of them read English magazines and novels, and 12 read materials written in their native languages. These included newspapers, the Bible, and cookbooks as well as magazines and novels. Five of them did not like to read at all. Sixteen students enjoyed watching television. They mentioned funny shows, romances, game shows, and sports as favorites. Two students did not watch television very often, and six did not watch any at all.

Eighteen students spoke some English at home; however, there was a significant negative correlation between this factor and the independent level of the CRI. This contradicts Connor's findings. When the data are examined more closely, it is noted that the four students who spoke no English at all at home came from Hong Kong, Russia, or Poland. These countries have education systems which are quite similar to Canada's (Settlement Services of Alberta Manpower, 1986). Furthermore, none of these students' education had been interrupted. Cummins (1980) documented studies which suggest that inadequately developed L_1 skills may limit the development of competence in L_2. In Alberta, L_1 language maintenance is still largely the domain of the home (Yu, 1986). This study suggests that home L_1 maintenance is producing favorable results.

Although 17 students said that they liked Canada when asked, others gave responses that showed that another culture and country were tugging at their hearts. One student blurted, "No!" Another mumbled, "Can't go back." Another said, "School is better here." His intonation indicated that nothing else was. Three said that they wanted to return to their native countries.

Question Two

Are the English language arts skills of these New Canadian adolescents approaching grade norms?

As well as discussing the data on the whole sample, this discussion considers students who have been in Canada for over five years separately from those who had been here for less time. This is done to determine whether or not these data are consistent with Cummins' findings that it takes from five to seven years, on the average, for ESL adolescents to approach grade level in cognitive academic skills. The 24 students had been studying in Canada from 0.8 to 9.0 years. The mean is 2.3 years. If the two students who had been in Canada over five years (six years or nine years) are removed, the mean length of Canadian schooling is 1.5 years.

R/EAL. Lichtman (1977) has specified levels of achievement for this test. Table 3 defines those levels and gives the number of students and percentages of students at each level.

The correlation data do not suggest that years of Canadian education correlate positively with R/EAL scores. Based on Lichtman's levels of achievement, one would conclude that nearly half of the students cannot cope with reading materials encountered in daily living in Canada. The other half, including those who had been in Canada over five years, had difficulty coping. The student who could easily cope with reading requirements outside school had been in Canada for 0.8 years. These findings are contrary to the researcher's personal experience, so the data were examined in more detail.

Lichtman also suggests that students should concentrate on specific areas if they have low subtest scores. The students at mastery level

Table 3

Performance on the R/EAL

Level of Achievement	Percentile	Number of Students at Each Level
mastery	greater than or equal to 76	1 (4%)
marginal literacy	between 26 and 76	11 (48%)
illiteracy	less than 26	11 (48%)

and the two students who had been in Canada for over five years had no low subtest performance scores. The other students at the marginal level had from zero to three low subtest scores; whereas, the students at the illiterate level had between three and eight low scores. As there are nine subtests, this more detailed analysis indicates that there were no illiterate students in the sample; rather, emerging literacy is evident.

CRI. For the purpose of this study, a grade eight instructional or independent level score is arbitrarily chosen as approaching grade norms. This is the highest level tested on the CRI, and students were going into grade 10. It should be noted further, however, that by grade 10, the range of reading scores found is from grade five to grade 15 (Beumeister, 1974). For these reasons, the researcher considers grade eight instructional level to be adequate for success in English 13 and perhaps in English 10 as well.

There is no significant correlation between years of Canadian schooling and the CRI comprehension levels. Two out of the 22 students who completed the CRI scored at grade eight independent reading level, and one student scored at grade eight instructional level. One of these students had been in Canada for six years; the others had been in Canada for 0.8 and 2.5 years respectively. The student who had been in Canadian schools for nine years scored at grade five level (independent). Nine of the students reached frustration level by grade seven, four by grade six, one by grade five, four by grade four, and one by grade three. That is, 16 students (73 percent) scored within the range expected in grade 10.

TOAL Subtest V (Reading/Vocabulary) and Subtest VIII (Writing/Grammar). On the TOAL, raw scores are converted to scaled scores based on the age of the student. The range of ages of students in this study was from 16 years six months to 17 years three months. The average age was 15 years five months which is the grade 10 year for most Canadian students. Table 4 shows the number and percentage of students scoring at each level.

There is no significant correlation between years of Canadian schooling and the TOAL scores. One student who had attended Canadian schools for over five years scored below average on both subtests; the other did not write the test. The students who were average or above average on the reading/vocabulary subtest had been in Canada 1.3 years or less. For the writing/grammar subtest, average students had been in Canada 2.5 years. Of the students who had been in Canada less than five years, 82 percent and 70 percent scored below average and poor levels, on the reading/vocabulary and writing/grammar subtests, respectively.

PPVT. The range of scores on this test supported the data from the TOAL. The scores ranged from two years 11 months to 14 years six months. For this test, there was a positive correlation (0.4380) between the scores and number of years in Canadian schools ($p = .016$). The mean score for students who had been in Canada less than five years was seven years six months. The two students with longer residence scored 13 years seven months and 12 years 11 months. This indicates that English vocabulary increased with time spent here.

SGWS. The range of scores was from grade 2.7 to grade 7.5. The correlation results do not indicate a significant relationship between

Table 4

Performance on the TOAL

Scaled Scores	Achievement Level	Number of Students at Each Level	
		Read/Vocab.	Writing/Gr.
18-20	Superior	0	0
14-17	Above Average	1 (4%)	0
7-13	Average	2 (9%)	6 (26%)
3-6	Below Average	9 (39%)	14 (61%)
0-2	Poor	11 (48%)	3 (13%)

spelling scores and number of years of Canadian education. These scores must be interpreted cautiously as in England (norming population) students begin school at age five. For students who had attended Canadian schools less than five years, the scores ranged from grade 2.7 to grade 7.1 with a mean of grade 5.2. For the other two students, the scores were grade 7.5 and grade 4.3.

Summary and Discussion of the Product Analysis

The 24 ESL students in this study came from Hong Kong, Brunei, India, China, Vietnam, Russia, Taiwan, Poland, and Korea. On the average, the students had been in Canada for 2.3 years and attended ESL classes for 1.6 years. These classes provided both English language instruction and content area instruction in English. The highest level was a withdrawal program for ESL students who were in the regular core subjects. Correlations were obtained by relating factors reflecting formal and informal education, as reported on teacher and student interviews, with scores obtained on selected language arts tests.

The results of this study suggest that the PPVT is more sensitive to vocabulary development than the other language arts tests chosen for the study. This is indicated by the increased number of significant correlations between the PPVT and the factors reflecting informal and formal education. Furthermore, two factors which correlate positively with all language arts test scores are the ESL teachers' opinion of future school success and the "equivalence" of education systems in the native country to Canada's education system.

In Connor's study knowledge of Vietnamese was positively correlated with reading scores. In the present study, the Vietnamese-born students

received the lowest scores. Connor's study had many more long term residents than the present study. The Vietnamese Canadians in the present study are refugees, and they have all been in Canada approximately two years. Another finding that contradicts Connor's results is the age factor. The negative correlation between age and reading and writing scores in the present study is explained by the fact that several of the older students were from countries with interrupted education or education which is quite different from that in Canada.

The number of years of education in Canada and the number of schools attended correlated positively with concrete English vocabulary. The number of years of ESL programs also correlated positively with classroom reading scores. These three variables are indicators of length of residence in the L_2 country, so this correlation again disagrees with Connor. She explained her negative correlation by noting that many of the long term Spanish speaking residents were not motivated to acculturate in the new L_2 environment. This was not the case with students in the present study. The ESL adolescents dressed like their peers and enjoyed the wide range of school activities and sports which are "Canadian".

In spite of the very Canadian looking image that these students project, all of them speak their native languages, at least some of the time. There was a negative correlation between English spoken at home and classroom reading scores. Hence, maintenance of mother tongue appeared to affect classroom reading scores positively. This finding contradicts Connor; however, according to Connor, a large segment of her sample had rejected the L_2 culture.

Connor found that the number of hours of ESL instruction was negatively correlated with reading scores. The present study agrees

with this finding. Students in the transition program, who had very few hours of ESL instruction, scored significantly better on the spelling test than those who were in ESL classes all day. The transition program is for students who have completed the advanced ESL program, so this result is predictable.

There was no significant correlation between language arts scores and years of education, or number of languages read or written.

Cummins' hypothesis that New Canadian adolescents take from five to seven years, on the average, to reach grade norms in cognitive/academic skills was the focus of the discussion of question two. There is little evidence in the correlation data to indicate that years of schooling in Canada is related to language arts scores. Out of eight correlations between years of education in Canada and test scores, only one is significant and positive. For years in the ESL program in Canada, only two tests are significantly correlated.

On the average, students in this study had not developed language arts skills to grade 10 level. However, the students' knowledge of reading in English reached a level that is within the range found in grade 10 classrooms. On the average, their vocabulary and spelling skills were at a more elementary level. The two students who had been in Canada for over five years did not, for the most part, approach grade norms in language arts; whereas, the four students whose scores approached grade norms for two or more tests had been in Canada for 2.5 years or less. Overall, it was not possible to confirm or reject Cummins' hypothesis on the basis of results in this study.

Connors, after her study on individual, instructional, and socio-cultural factors and L_2 reading, concluded that, "single variate approaches are inadequate to study the causes of L_2 reading performance"

(p. 271). Considering the results of the product analysis of this study, the researcher would agree and extend the statement by concluding that single variate approaches are inadequate to study the causes of English language arts performance for any ESL population.

Process Analysis

The process data in this study were analyzed descriptively as the sample size was small ($13 \leq n \leq 24$)

Question One

Are similar processes used when ESL students read passages at independent, instructional, and frustration levels?

In order to answer this question recalls from the CRI were coded using Fagan's categories and the percentage of recall units in each category was determined for independent, instructional, and frustration levels for each student. These percentages were averaged and the results are depicted graphically in Figure 8. From this figure, it is obvious that there are differences in profiles across the different reading levels. However, the profile for independent level differs more from that for instructional and frustration levels than these latter two differ from each other (see Figure 8).

At frustration level, the highest percentage, 33 percent, of recall units was text specific with relatively low percentage in the text inferential and text experiential categories (nine percent and six percent, respectively). This implies that at this level, ESL students relied heavily upon their knowledge of lexical items and propositions within T-units rather than relating text to their

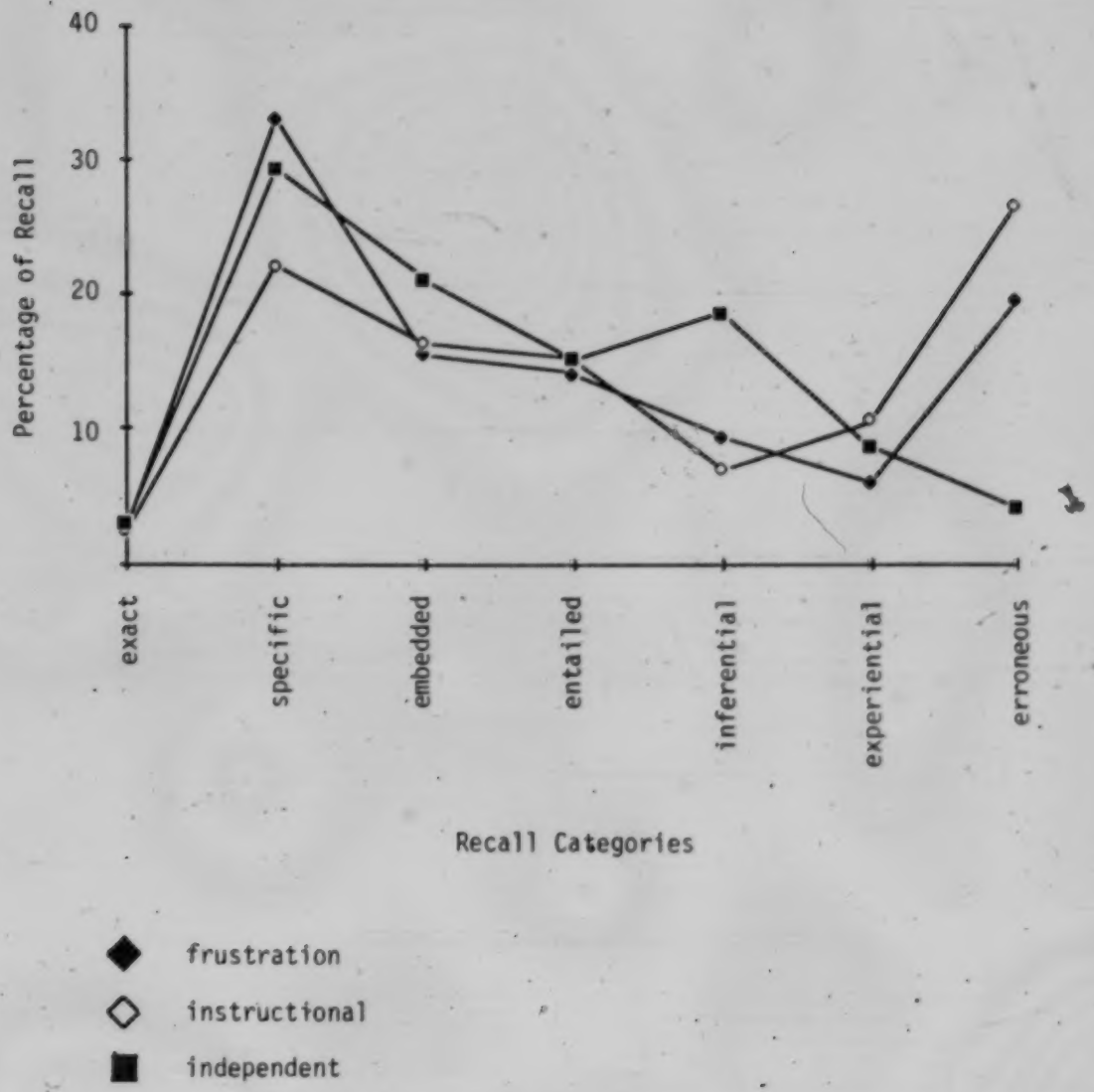

Figure 8. Percentages of Recall Units Across Comprehension Categories for the CRI

experience. There was a high percentage of error (20 percent) of which 72 percent was text based. These text errors included incomprehensible pronunciations, assigning lexical items to inappropriate referents, misuse of pronouns, and incorrect data and times. From these results, it can be inferred that the major processes engaged by students at frustrational level were analysis and association within T-units, and that processing was less effective.

At instructional level students relied less on analysis and association within T-units as indicated by two percent of recall in text exact and 22 percent in the text specific category at instructional level, as compared with three percent and 33 percent, respectively, at frustration level. Text experiential units increased somewhat, that is, from six percent at frustration level to 11 percent at instructional level. The text experiential category contains elaborations which are not constrained by text. Error still accounted for a large part (27 percent) of the recall; however, only 50 percent of this error was text based. To summarize, at instructional level, ESL readers were less concerned with text, but did not yet appear to be effective in relating prior knowledge to the text. Therefore, elaboration was noted together with errors.

At independent level there was a different profile. At this level students attended to discourse within T-units as indicated by three percent of recall units in the text exact category and 29 percent in the text specific category. They were also synthesizing ideas across T-units. This is indicated by a somewhat higher percentage (21 percent) of recall units in the text embedded category at independent level than at either instructional or frustration levels, which were 16 percent and 15 percent, respectively. There were also more text based inferences at

independent level, 19 percent as compared with seven percent at instructional level and nine percent at frustration. This indicates that, at this level, students could use relevant "Canadian" world knowledge and relate it to the text to make correct inferences. This conclusion is supported by a decrease in errors to four percent from 27 percent at instructional level and 20 percent at frustration level.

Based on L_1 studies discussed in Chapter II, it can be noted that when ESL students were reading at independent level, the profile of recalls was similar to that of good L_1 readers of English (Brake, 1981; Deane, 1984).

Kavanagh (1981) found that the instructional and independent profiles of Canadian L_1 readers were very similar and that both were quite different from profiles at frustration level. She found that at independent and instructional levels text specific and text experiential recall units were most common. (Her text experiential category was equivalent to text inferential and experiential in the present study.) The profile found at independent level in the present study is similar to the one at independent and instructional levels in Kavanagh's study.

Question Two

Are similar processes used by ESL students when listening to and reading about a content area?

In order to answer this question, notes taken while listening to a teacher talk and then while reading the passage used by the teacher were coded using Fagan's categories. Percentages of recall units in each category were determined for the listening notes and reading notes for each student. These percentages were averaged and the results are depicted graphically in Figure 9. From this figure, it is obvious that

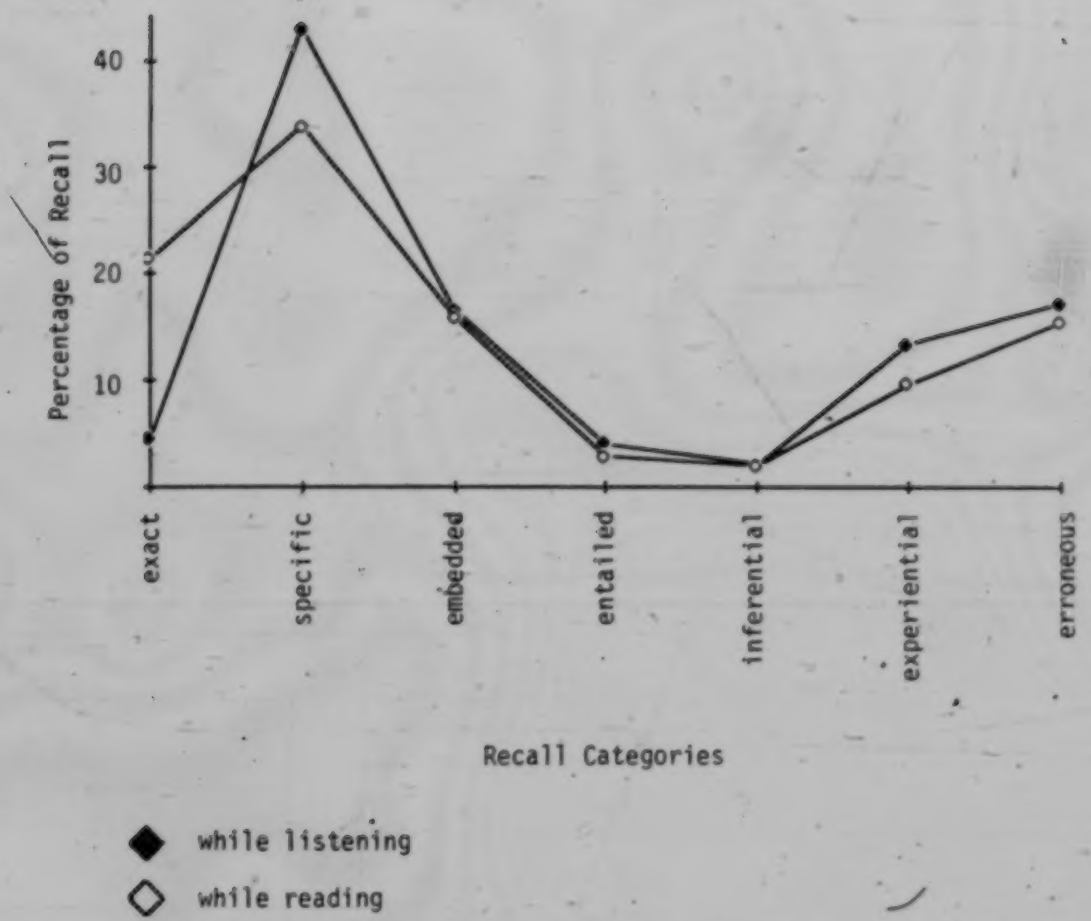

Figure 9. Percentage of Recall Units Across Comprehension Categories for Note-taking

the profiles are similar. While overall similarities between listening and reading profiles were evident, there were some minor differences. Note, for instance, that when students were able to refer to the text, the percentage of text specific units (21 percent) was higher than on the listening tasks (four percent). This implies that these ESL students feel that note-taking should be exact recall. When they were listening, they reworded or transformed elements within T-units more often. This is, perhaps, a reflection on the limits of memory for exact reproduction, and during listening, a sign to the teacher of increasing English vocabulary. The 13 percent of recall on the listening activity and 10 percent on the reading activity in the text experiential category indicates that elaborating was occurring during note-taking. Elaborating in this context was noting good rules for reading which were not included in the text and listing prior knowledge of reading experiences. That is, students were associating concepts in the text with a "reading" schema.

Further analysis of data on this task revealed that the students' notes were quantitatively similar to the teachers' notes. Teachers had included nine T-units, while students, on the average, produced 7.9 on the listening task and 10.6 on the reading task. It is important to note, however, that only 40 percent of these notes were identified as important details and generalizations by teachers. Furthermore, when requested to make the best notes that they could and given extensive time to complete the task, not one student used an outline format or any other indication of subordination. One student indicated coordination by numbering from one to 10. This finding is consistent with the very limited percentage of recall units in the text entailed category. This would appear to be an area of weakness for ESL students.

Question Three

Are similar processes used by ESL students when discussing a picture informally and when writing about it in a formal setting?

In order to answer this question, recalls from an oral picture story/description in which students were asked to pretend to be talking to a friend, and recalls from a written picture story/description which students were told was a classroom assignment to be graded were coded using Fagan's categories. The percentages of recall units in each category were determined on each task for each student. These percentages were averaged and the results are depicted graphically in Figure 10. From the figure, it is obvious that the profile obtained on the oral and written tasks are very similar. This implies that the processing during the oral and written recalls was very similar.

As expected, asking for a story or description of a picture elicited most recall in the text experiential category. These elaborations, which are associations cued by picture input and storyline additions, are very appropriate for the task assigned. The oral recall task was designed to be more informal than the written classroom task; however, the classroom task elicited more elaborations. Sixty-seven percent of T-units produced were in the text experiential category for the written task; 52 percent were in this category on the oral task. That students were more input bound in the informal setting is puzzling. Perhaps the time allowed for writing provided the silent minutes necessary to generate elaborations. The presence of an unknown teacher in a one-to-one setting in a strange room may be more threatening than a group setting in a classroom. If this is true, then the more remote

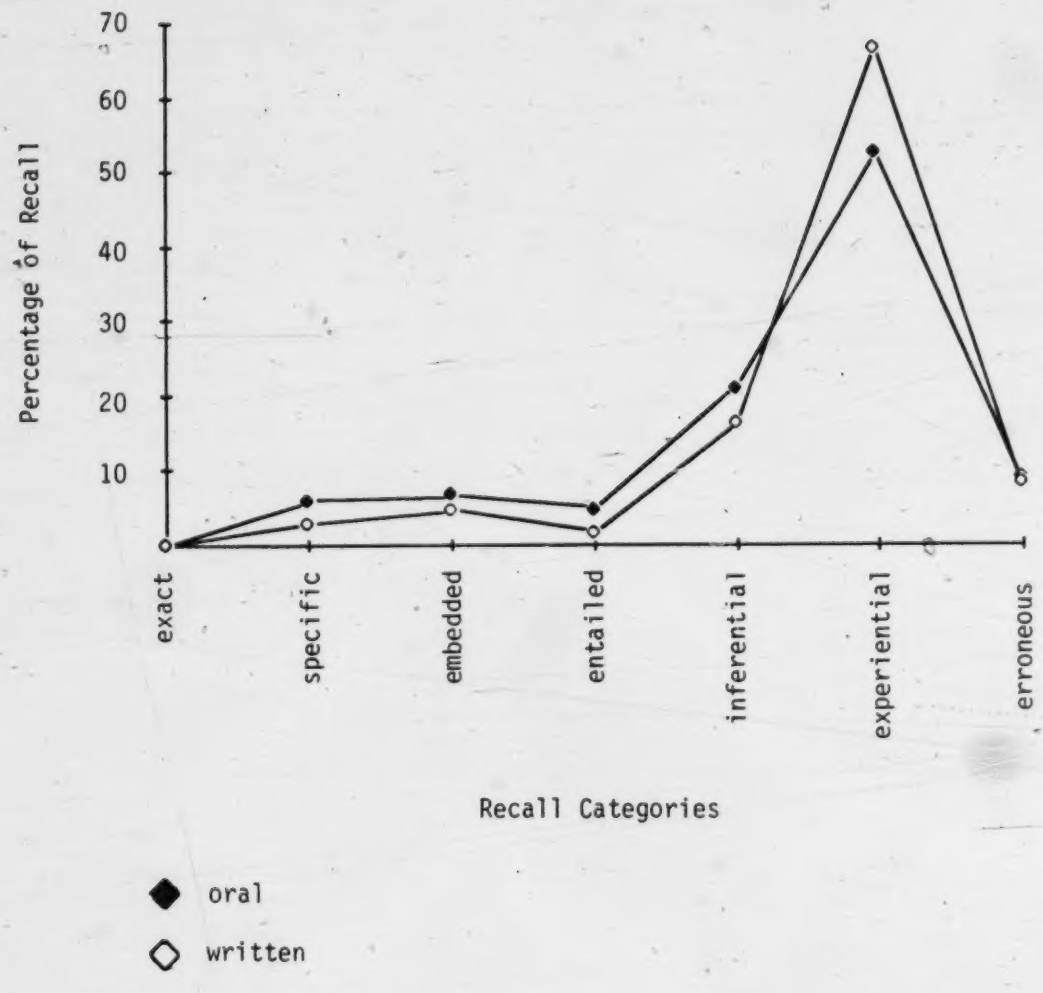

Figure 10. Percentage of Recall Units Across Comprehension Categories for Picture Story/Description

the teacher-student relationship, the more input-bound a student will be.

There was a similar amount of error in each mode, with nine percent of recalls in the text erroneous category for the oral recall and eight percent for the written recalls; however, a closer examination of this category is very interesting. In the picture, the wall behind the people appears to be a church to most Canadians. This may be because stone and curved glass windows are not common building materials for homes in Canada. Approximately one-half of the T-units in the error category were coded as errors because students labelled this structure a house. Hence, the "true error" in this study is half as much as noted.

Question Four

> Are similar processes used by ESL students when recalling graded reading materials, taking notes in a content area, and describing a picture?

In order to answer this question profiles from questions one to three were studied for similarities and differences.

The quantity of recall across tasks was very similar, between seven and 10 T-units, on the average, for each task. This implies that these tasks are equally effective for eliciting language in terms of quantity.

The types of processes used for each task, however, were quite different. Deane (1984), in a study of Canadian L_1 speakers, found that different kinds of tasks, namely free recall and sentence verification, elicited different profiles. The results of this study are consistent with her findings. The picture description task elicited many elaborations; whereas, note-taking was more text specific. The profile at independent level, when recalling graded reading material, was more

balanced, with reliance on both text and background knowledge. Teachers who become aware of these different profiles should be able to vary tasks to effectively develop the skills and processes required.

When the CRI profiles at instructional level are compared with the note-taking profiles, there are notable similarities (see Figures 8 and 9). This suggests that the note-taking input was at instructional level. This was the researcher's intent as L_1 studies suggest that instructional level is appropriate for teaching purposes and very similar to independent level in terms of the processes elicited. On the basis of the findings from the CRI, the note-taking task was at an inappropriate level for ESL students to process text-based material and synthesize it with background knowledge. That is, they did not balance use of text and background knowledge as effectively as they could when reading material at independent level.

Finally, there was a consistent lack of text-entailed units across all tasks. This category involves synthesis of ideas across larger units of text. This implies that these ESL students would benefit from becoming more aware of intersentential relationships.

Summary and Discussion of the Process Analysis

The process analysis involved an examination of profiles of ESL students' recalls of graded reading passages, notes on a content area, and stories or descriptions of a picture.

For the graded reading materials, the frustration, instructional, and independent levels were established for each student. Profiles of recalls, made by classifying T-units using Fagan's categories, were compared. The profile at independent level differed more from those for instructional and frustration level than these latter two differed

from each other.

Krashen's (1984) theory predicts that "interaction with texts far beyond present competence will not result in acquisition" (p. 265). The present findings agree with this hypothesis as processing often becomes less effective at frustration level. Krashen continues by suggesting that, at this level, there can be "global comprehension of main ideas with little or no supporting detail" (p. 265). The findings of the present study are not consistent with this statement, as at frustration level the ESL students, for the most part, attended to discourse within T-units (i.e., details) and their processing of these details often broke down.

Comparison of the findings at independent and instructional level with Krashen's theory is more problematic. The researcher equated "i" with independent level and "i + 1", input with instructional level. This decision was based on Krashen's definitions and Kavanagh's finding of similar and effective processing at these levels. These classifications must be qualified in the light of the present findings. Krashen predicts that acquisition can occur when some structures and vocabulary are only slightly beyond the students' present L_2 level.

Readings at the independent level would have a small number of structures beyond the students' present L_2 level. At this level, processing is similar to that of good Canadian L_1 readers (Deane, 1984). Therefore, at this level acquisition should occur without teacher assistance.

At instructional level, there would be more structures beyond the students' present L_2 level and processing was less effective. Krashen suggests that teacher talk and concrete referents be used to assist comprehension. The present findings suggest that a great deal of

teacher support is necessary for acquisition at this level, and that the focus of instruction should be to encourage students to relate their background knowledge to the text.

Profiles for taking notes while listening and reading were similar; therefore, processing was similar. This finding is consistent with Coles' L_1 study (1983) in that she found that "irrespective of the mode of input, unitary thought processes are embedded in the tasks of reading and listening comprehension" (p. v).

These students most often analyzed and associated information within T-units. That is, they interpreted the task correctly, as a text-based assignment. It is interesting to note that text experiential units made up 10 percent of the recalls, and that there was a substantial amount of error. This implies that elaborating was a commonly used process, and that processing was not effective. These findings indicate that the reading was likely at instructional level. A reading at independent level may have resulted in more synthesis of text and world knowledge and less error.

The profiles for the oral picture story/description and the written one were also similar. This finding is consistent with McKen's L_1 study (1984) of oral and written recalls of an information passage. As was expected, most recall occurred in the text experiential category. This implies that elaborating was the most common process used. There is a definite indication of reliance on cultural world knowledge which is different from most Canadian's world knowledge. There is some indication that the affective climate in the classroom may have an influence on the amount of elaboration. This is implied as the informal assignment given in a strange room with a one-to-one relationship between the teacher and student elicited fewer elaborations than the

classroom setting with a formal assignment.

Although the quantity of recalls across these tasks is very similar, the profiles are different. This implies that the processing was different. It could be helpful for teachers to know these profiles so they could vary tasks to develop specific processes.

The percentage of recall in the text entailed category is relatively low across tasks. This indicates that students are not synthesizing very much across basic units. Further, on the note-taking task there was little evidence of subordinating or coordinating in the formats. As Coles (1983) found that good readers tend to be good synthesizers, this is an area of weakness for ESL students.

On the basis of the product and process analysis, several implications for theory and practice will be made in Chapter V.

CHAPTER V

SUMMARY, CONCLUSIONS AND IMPLICATIONS

Summary of the Study

The major purpose of this study was to determine the language arts skills and processes of ESL students who were going from ESL programs in a large urban center in Alberta to the regular grade 10 program. Twenty-four ESL students and three ESL teachers completed interviews which were designed to determine selected factors reflecting formal and informal education. The ESL students also completed five language arts tests and several language arts tasks. Scores on the TOAL (Subtests V and VII), SGWS, PPVT, R/EAL, and the comprehension scores on the CRI were related with the factors reflecting informal and formal education by using Pearson Product-moment Correlations. These correlations were the focus of discussion of the ESL students' language arts skills. Unaided recalls from the informal reading inventory, notes taken while listening and while reading, and oral and written picture descriptions were broken into T-units. Then they were analyzed by using Fagan's comprehension categories which were adapted for use with picture input. Inferences regarding language processing were made on the basis of the percentage of recall in each category. Profiles at various reading levels, profiles for different input and output, and profiles across tasks were compared.

Major Findings and Conclusions

The Product Analysis

The factors reflecting informal and formal education which were significant ($p \leq .05$) and positively correlated with all language arts scores were the ESL teachers' opinions of future school success and the similarity of the native school system to that in Alberta. Number of years in the ESL program was positively correlated with reading scores. English spoken at home correlated negatively with reading scores. The latter correlation implies that mother tongue maintenance aids L_2 reading. The number of languages spoken, exposure to English in the native country, number of years of education in Canada, number of years of ESL, and the number of schools attended in Canada related positively with scores on the concrete vocabulary test (PPVT).

For the most part, the ESL students in this study were not achieving at grade level in language arts skills. Their reading skills, however, were generally within the range found in grade 10 classrooms. The researcher concluded that a univariate approach to the study of ESL language arts skills is inappropriate as several variables interact, and all relevant variables cannot be considered. Furthermore, a comparison with Connor's study indicated that ESL populations may be very diverse.

For the sample in this study, it was not possible to confirm or reject Cummin's hypothesis that it takes adolescents from five to seven years, on the average, to approach grade level on academic/cognitive skills. Only a small number of students had been in Canada more than five years, and these students were not, for the most part, approaching grade level on the test given. In addition, factors measuring increasing education in Canada were not significantly correlated with most language

arts test scores. However, the range in terms of number of years in Canada may have been too narrow to establish consistent significant correlations across tests given.

The Process Analysis

The process analysis indicated that the profiles of ESL students who were reading at independent level was similar to those of good L_1 readers of English. However, the profiles at instructional and frustration level were different.

Krashen's input hypothesis (1984) predicts that discourse far beyond the present language competence of the student is not very helpful for acquisition. The findings of the present study are consistent with this hypothesis as, at frustration level, processing becomes less effective. Krashen suggests that students should "concentrate on global comprehension of main ideas with little or no support detail" (p. 265). At frustration level, students in the present study were concentrating their attention almost exclusively within the T-unit, that is, on details. Only when reading approached instructional level did students begin to associate text and world knowledge. This association is necessary for synthesis across T-units.

Krashen also predicts that input at the i + 1 level will result in acquisition. If very few structures were at i + 1 level, then the students in the present study successfully processed the data, that is, they were able to successfully process text-based information and to make inferences by relating text and background knowledge. If on the other hand, there were more than a few structures at i + 1 level, the processing was less effective.

The profiles for note-taking while listening and reading on a note-taking task indicate that similar processes are involved, regardless of input mode. The ESL students in this study interpreted the task correctly, as a text-based task requiring analyzing and associating the text within T-units.

The profiles of the oral and written picture stories/descriptions indicate that similar processes were involved regardless of output mode. The students interpreted the task correctly, as a world knowledge-based test. They associated the picture input with appropriate world knowledge and elaborated on the picture as well as providing a storyline. In this activity, the difference in cultural knowledge between homeland and Canada was evident in responses coded as erroneous.

Although across tasks the quantity of output was similar, the profiles were very different. This implies that the processing was very different on recall, note-taking, and picture description tasks. Therefore, different processes would be developed by using different tasks. Comparison across tasks also indicated that the ESL students in this study had a difficult time synthesizing text information across sentences.

Implications of the Study

Theory

In ESL, researchers have tended to focus on specific aspects of language development. Fagan's Semantic Potential Interactive Processes Model was developed through a synthesis of research in L_1 reading and language, and has support in L_2 research. It also appears able to accommodate different types of input and output. For these reasons,

his model would be a useful tool for researchers to use as an organizer and a predictor of L_2 language arts development.

Classroom

The level of difficulty of the input is a very important consideration in a classroom setting. Input at the independent level would facilitate appropriate processing and comprehension of content as well as acquisition of language with little teacher assistance.

At instruction level, attention was focused on detail, but there was some indication of associating the text and world knowledge by elaborating. Krashen suggests that input be made more comprehensible by using teacher talk or concrete referents like pictures. The present study suggests that a more specific strategy needs to be considered. That strategy is to assist the student in relating the text to his background knowledge in order to synthesize across T-units and to compare cultural knowledge.

Because a major problem across all tasks was the difficulty ESL students had in synthesizing across T-units, development of content schema and formal schema to accommodate this process must be facilitated. By encouraging the association of text and world knowledge, students would be aided in developing an appropriate content schema. MacLean (1986) used retrospection in her study. This method used in a classroom discussion of text could improve awareness of intersentential relations. Other commonly used strategies at the discourse level are semantic mapping, outlining, and diagramming. These strategies would assist in the development of appropriate formal schema as well as developing content schema. Carrell (1984) has also developed a program for teaching top level rhetorical organization of text to develop appropriate formal schema.

In Canadian schools, the ESL students must become acquainted with the Canadian culture. Without this knowledge, they cannot make inferences or synthesize across T-units 'correctly'. In order to relate their world knowledge to ours, a non-threatening environment is required. Strategies for sharing cultural knowledge include emphasizing same or different, rather than better or worse, and requiring students to give reasons for their statements. Errors in synthesis and inference may be text-based or knowledge-based and for the ESL teacher, both of these must be considered.

Varying the task would aid in developing more flexible processing of input. Picture input encourages the use of world knowledge; whereas, note-taking encourages heavy reliance on the text. Note-taking while listening appears to force students to analyze the stimulus and associate it with lexical items in their semantic memory more than note-taking while reading. Through discussion, students could become aware that prose reading requires a more balanced approach than picture descriptions or note-taking.

Testing

In light of the findings related to the product analysis, the Peabody Picture Vocabulary Test appears to be a useful instrument for determining growth of concrete concepts in English. It reflects the effects of a wide range of informal and formal factors.

In selecting exit tests and other tests used to make important decisions about ESL students, several factors need to be considered. Tasks should be chosen carefully because some encourage a focus on world knowledge, while others encourage use of text knowledge.

To establish a grade level at which students can read effectively, the independent level of the test should be used. At instruction and

frustration level, the processing of the ESL students in this study was not effective.

Because the mode of input and output did not have a significant effect on processing, repetition of mode is not required; that is, testing every mode, i.e., listening, reading, writing, and speaking, is unnecessary.

Finally, the present study indicates that ESL teachers are good judges of student progress. This suggests that informal assessment in working with ESL students is appropriate.

Suggestions for Further Research

1. Based on the analysis of the product data and factors related to informal and formal education, it would appear that research using univariate approaches is inappropriate with ESL students.
2. The data on the CRI were collected after oral reading. The present study could be replicated by having a similar sample read silently or choose the type of reading which they prefer.
3. The present study used a limited number of subjects and could be replicated using other samples in order to confirm the findings.
4. Various classroom strategies which are purported to improve synthesis beyond the sentence level could be tested in ESL classrooms.
5. Longitudinal studies of ESL students are needed to document factors related to changing language development needs.
6. Yu (1981) used a ethnographic approach, combined with statistical analysis, in her study of Hong Kong and Alberta students. Her study is recommended as an appropriate prototype for the design of

future ESL studies. Furthermore, more interdisciplinary research is needed in ESL so that labels for concepts and advances in one area can benefit others.

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APPENDIX A

Teacher Interview

1. Would you describe the ESL program in your school? (numbers, ratio or total teachers and assignments)

2. Would you describe the reading component? (developmental, language experience, phonics, skills based, texts, reading checklists)

3. Is the text useful? Why? Why not?

4. How do you decide who you will promote to English 10/13?

5. What can you add that might help me to interpret the students' scores? (health, hearing, vision, special problems)

6. Could I have an essay or paper representative of each student's work?

7. What education and teaching experience do the ESL teachers have?

APPENDIX B

Questions for Student Interview

Language

1. What languages do you speak, read, write? How well? (A little, Not bad, Very well)

2. What is your main language?

3. Do you speak English at home sometimes?

4. Did you learn English before you came to Canada (to speak it, to read it, to write it)? How well?

Schooling

1. How long did you go to school before coming to Canada?

2. What other countries have you lived in?

3. How old were you when you started school?

4. Was your schooling quite different from this schooling? How?

5. When did you learn to speak
   Where to read
   to write languages above?

6. How many schools have you attended since moving to Canada?

7. How long have you been:

   in the E.S.L. program?

   in school in Canada?

Health and Adjustment to Canada

1. Do you have any health problems?

2. Glasses?

3. Hearing?

Hobbies and Interests

1. What are your hobbies and interests outside school?

2. What are your favorite magazines? T.V. shows?

3. What is your best school subject?

APPENDIX C

Reading Health

An athlete who expects to move at top speed is very careful to keep in excellent physical condition./ He stays in trim and cautiously observes the training rules./ Similarly, if you expect to do the best job of reading of which you are capable, you should condition yourself to do it./ You cannot expect to speed over the lines of print with tired or overstrained eyes./ Here are some simple rules for keeping in good physical shape for skillful reading./

You should have your eyes checked regularly, say once a year or so./ Since your eyes are irreplaceable, you ought to give them the best possible care if they are to last you a lifetime./ If you wear glasses and have them checked from time to time, you need not worry about straining your eyes by reading excessively and at very rapid rates./ Imperfect vision which has been corrected by glasses is perfectly satisfactory for reading, and will not hold you back in any way./ If you have been advised to wear glasses while reading, be sure to do so./ It is foolish to be vain about the matter./ When you begin to establish the reading habits of a skillful reader you will begin to find real pleasure in the physical act of reading./

Good lighting is important in reading./ The light should come from behind, or at least be so placed that it is shielded from your eyes./ It should be strong enough to light the page clearly, and yet not so strong as to produce a glare./ Too strong a light, such as direct sunlight, puts the worst kind of strain on your eyes and tires them./ With ample, clear, and well-placed illumination, you will find that you can read for hours without tiring.

The page you are reading should be fourteen to sixteen inches from your eyes,/ but you may find it more comfortable to read at a little shorter or a little longer distance./ Choose the distance that seems most natural and most comfortable for you./ It is best to hold a book in your hands or to rest it in an inclined position when you read./ Avoid reading from a book that is flat on a desk or table./ Not only does it cause eye fatigue,/ but it also makes you hold your head in a strained position./

Some people have headaches and a strained or twitching feeling about the eyes after reading a long time./ Most of them could avoid this unnecessary and dangerous discomfort if from time to time they would look away from the book and rest their eyes on some distant object./ Your eyes are wonderful mechanical devices,/ but they need your considerate treatment if they are to continue to function well./ In their movements over the printed page they use up almost as much energy in a few minutes as they would in dwelling on a distant landscape for much longer period./ If you plan to spend the whole evening reading, take a short break every half hour or so./ Now and then look up from your book and gaze at the other end of the room for a moment./ If you do this you should never be troubled with eye fatigue./ Many students who read eight or more hours a day do not experience eye fatigue because they consistently practice good reading hygiene./

APPENDIX D

Report on Education System in South Vietnam

This information was shared with the researcher by Florence Trang and Hoa Nghiem who are Multicultural Home School Workers (See Yu, 1986). Mrs. Nghiem taught French in a Vietnamese Public School for 10 years, and Mrs. Trang was an English tutor in Vietnam.

Before 1975, there were private Chinese, French, Vietnamese, and Chinese/Vietnamese schools as well as a public Vietnamese school system in Vietnam. The public system attracted better teachers, as wages were better, and students had to compete to go to this system. The age for beginning school was not as strict as in Canada; however, in cities, most children began their schooling when four or five years old. Because schools in the country were more scarce, some children had no formal education. There was a law requiring children to attend school, but the law was not enforced. Elementary school went from grades one to five. The curriculum was similar to Canada's, except that social studies content centered around Vietnam and neighboring countries. High school was from grades six to twelve. World geography, economics, and political systems were studied at this level, and French and English were studied as second languages. Teachers had curricula to follow, but there was considerable freedom to vary content to meet the needs of students and to interpret content.

After 1975, the goal of education became preparation of children to be good communist citizens. Teachers attended regular meetings to discuss what would be taught. The lessons were written and distributed, and everyone was required to teach the same thing. The content, a poem perhaps, would not change, but the interpretation was different from

that given before 1975, and everyone gave the same account.

Most of the immigration to camps in Hong Kong, Thailand, Malaysia, and the Phillipines occurred during 1978 and 1979. Although education varied from camp to camp, the best was irregular tutoring. The Hong Kong camp had the best supplies, a blackboard and chalk and a few books bought by refugees, who were allowed to work outside the camp. The teachers in this camp taught functional English, and the priest taught the teachers more English. In Thailand, the situation was much worse. There were no school supplies at all, but teachers helped children to learn some basic concepts as best they could. Even today, there is no regular schooling in the Thailand camp.

The main immigration to Canada occurred during 1980 and 1981. Most of the Vietnamese-born students in this study came to Canada at that time.